THE AMERICAN FLORA

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Linnæus.


FLORA
VOL. III.

THE

AMERICAN FLORA,

OR

HISTORY OF PLANTS AND WILD FLOWERS:

CONTAINING

THEIR SCIENTIFIC AND GENERAL DESCRIPTION,

NATURAL HISTORY,

CHEMICAL AND MEDICAL PROPERTIES, MODE OF CULTURE, PROPAGATION, &C.

DESIGNED

AS A BOOK OF REFERENCE FOR BOTANISTS, PHYSICIANS, FLORISTS, GARDENERS, STUDENTS, ETC.

BY A. B. STRONG, M. D.

VOL. III.

IS ILLUSTRATED WITH

SIXTY-SIX BEAUTIFUL COLORED ENGRAVINGS,

TAKEN FROM NATURE.

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MEMOIR OF LINNÆUS.

As an introduction to the third volume of the "AMERICAN FLORA," we have thought it advisable to give a short and brief account of the life and history of the illustrious naturalist who first practically pointed out the real utility of some system by which the great kingdoms of nature could be properly studied and understood, and their advantages to man most easily procured and adapted. The name of Linnæus is known to the whole civilized world; and, if we consider the rank of his parents, the scanty means possessed by them to defray the expenses of his education; and what was necessary in the early part of his career, to pursue his own favorite studies; with the limited state of the botanical gardens at that period, we shall think that the merit which his cotemporaries awarded him, was very justly earned.

The principal facts introduced in the following sketch, are taken from the biography by Dr. Pulteney, and the diary of Linnæus, written in Swedish, by himself, or under his superintendence, and published as an appendix to the work above mentioned. From this diary we learn that Nils Linnæus, the father of the naturalist, born in 1674, was the son of a peasant named Ingemar Bengtsson, in Smaland, and married Ingrid Ingemarsdotter, sister of Ivan Tiliander, pastor of Pietteryd. The latter took Nils Linnæus into his house, educated him along with his own children, and, having a good garden, he gave him also a taste for horticulture. After quitting school, he was sent to the University of Lund, where he had to contend with poverty, but, nevertheless, applied himself diligently to his studies. Retiring to his native place, he was admitted into holy orders by Bishop Cavallius, and first became curate, and afterwards minister of Stenbrohult. He soon after married the parson's eldest daughter, Christina Brodersonia, and succeeded to the charge of his father-in-law, which he

enjoyed nearly forty years, discharging his duties with piety and moderation, and employing the greater part of his leisure in the cultivation of his garden.

Carl Linnæus, eldest son, was born 24th of May, 1707, at Rashult, in the province of Smaland, while his father was still a clergyman. With an inheritance of his father's love for plants and their cultivation, he is thus recorded by one of his pupils:— "From the very time that he first left his cradle, he almost lived in his father's garden, which was planted with some of the rarer shrubs and flowers; and thus were kindled, before he was well out of his mother's arms, those sparks which shone so vividly all his life time, and lastly burst into such a flame."

The elder Linnæus wished and intended that his first-born should succeed him in the office of pastor, and he endeavored to regulate the clerical education of his son, as far as his means would permit. At the age of seven, Linnæus was placed under the private charge of John Tiliander, and two years afterwards was entered to the school of Wexio; but in both these places, the discipline is said to have been severe, and not well fitted for the advancement of a young man of his mild temper, and he was soon after placed under another private tutor, who possessed a more conciliating disposition. His distaste for ordinary studies could not be so easily overcome, and it was not till three years after that he received promotion to a higher *form* in the school, called the *circle*. In this rank he was allowed more leisure, which was invariably devoted to his favorite pursuits, and chiefly his earliest, that of plants, and at this time began to show a more decided taste for botany, by forming a small library of such books as he could procure upon this science; and from his studious perusal of them, acquired the college name of the "Little Botanist."

Nearly two years after, the father came to Wexio, to ascertain the progress of his son's studies; and the disappointment of the sanguine hopes of a parent may be conceived, when the recom-

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mendations of his preceptors extended only to his ability for some manual employment; and that further expense in forcing a learned education would be comparatively thrown away.

At this time it was thought necessary that Linnæus should complete his education at some university; and, upon applying at the Gymnasium, he received the following metaphorical testimonial, which will show the little esteem in which his qualifications as a scholar were held, and is a curious example of the manner in which the professors worded their certificates: "Youth at school, might be compared to shrubs in a garden, which will sometimes, though rarely, elude all the care of the gardener; but, if transplanted into a different soil, may become fruitful trees. With this view, therefore, and no other, the bearer was sent to the university, where it was possible that he might meet with a climate propitious to his progress."

With this certificate he proceeded to the university of Lund, and only procured admittance by the interest of his old preceptor, Hok, who withheld the testimonial, and introduced him as his private pupil.

The next summer's vacation was spent with his parents at Smaland. Here he again met with Dr. Rothman, who advised him to remove to Upsala, where he would derive greater advantages from the celebrated Professors Rudbeck and Roberg, than in the more limited university of Lund; and would also have access to a rich public library, and extensive botanic garden. Linnæus followed the advice of his former patron; but his parents were only able to allow him about eight pounds sterling to defray all his expenses; and after a short time he found himself almost without the means of gaining a livelihood, uncertain where to obtain a meal, and obliged to patch his shoes with folded paper, instead of sending them to a shoemaker. He regretted his departure from a kind and hospitable roof, but did not possess the

means of returning; and Dr. Stobæus had taken it amiss, that he should have changed his residence without consulting him.

He was, however, soon relieved from this uncomfortable state by the kindness of new friends. The assiduity with which he studied the plants in the botanical garden, attracted the attention of Professor Rudbeck, and Dr. Celsius; and the latter, requiring an assistant, thought that Linnæus was qualified for that situation, and he opened his house and table to our naturalist, who amply compensated this indulgence by his strict attention. It was here that he composed his *Spolia Botanica*, a work never published; and contracted a friendship with Artedi, afterwards celebrated for his Ichthyology. These two young men now devoted their whole leisure to natural history; Linnæus reserving for his share, birds, insects and plants; while his companion took fishes, reptiles, &c.

About this time he made two or three journeys, in order to gather plants from various parts of the country, which well repaid him for his labor. On his return, he was introduced to Dr. Moreus, an eminent physician; and, being often at his house, became deeply enamoured with his eldest daughter. Her father thought well of Linnæus, but not of his prospects in life: he wavered in giving his consent to the union—"voluit et noluit," expressively writes Linnæus to a friend,—and ultimately decided, that a probation of three years should be undergone, when his decision would be given. All the efforts of the naturalist were now turned to that of bettering his condition in life. Medicine was chosen as a profession; but for this a degree must be acquired; and he resolved to proceed to the University of Harderwick. He travelled by Hamburgh, through Holland, to the place of his destination; and, at the former place, had nearly got into disagreeable embarrassments, by pronouncing the famous Seven-headed Hydra to be a deception, composed of weasles' jaw-bones, covered with ser-

pents' skins. He found it necessary to leave the place; for in so great value was this serpent esteemed, that it had been pledged in security for a loan of ten thousand marks, a value which this discovery by no means enhanced. Upon his arrival at Harderwick, he was introduced to the professors, wrote and defended his thesis, and finally received his degree of M. D., with a diploma, containing testimonials of his abilities, as flattering as those given upon his leaving school had been discouraging.

At the commencement of his journey homewards, the first place where Linnæus remained for any time, was Amsterdam. Here he gained the friendship of the celebrated Boerhaave, and that of Dr. Gronovius; the latter a person of still greater importance to his after fame. Gronovius was so much pleased with the sketch of the *Systema Naturæ*, by our young naturalist, that he requested to be allowed to defray the expense of its publication; and the request being granted, the work was immediately put to press, in the commodious form of tables, embraced in about twelve folio pages; and in this way was the foundation laid of that system upon which almost all those of the present day are in many ways most intimately connected, and by which the arrangements of the older systematists were almost at once superseded.

By Dr. Boerhaave, Linnæus was introduced to Mr. Clifford, at this time the most enterprising botanist and horticulturist in Europe. With him Linnæus spent, perhaps, some of his happiest days. Devoted with all the ardor of a young man to a favorite and fascinating pursuit, he was at once placed in one of the most favorable situations in the world for following it out. "He enjoyed," says Dr. Pulteney, "pleasures and privileges scarcely at this time to be met with elsewhere in the world—access to a garden excellently stored with the finest exotics, and to a library furnished with almost every botanic author of note; permission to purchase whatever plants and books he thought worthy of being

added to the collection; and leisure to prepare his own works for the press." In addition to these advantages, it is stated by his biographer, Stœvers, that Clifford allowed him a salary of one thousand florins yearly, but which appears too munificent even for his liberal patron. So lavish, indeed, was Mr. Clifford upon his favorite pursuit, that he proposed to send Linnæus to England, to procure the botanical novelties, and to communicate with the most celebrated botanists and horticulturists. Linnæus could not resist the offer, and we find our enthusiastic naturalist sailing for Great Britain, instead of making his way to Sweden. On his arrival at London, he waited upon Sir Hans Sloane, to whom he had a letter from Boerhaave, which recommended him in the strongest language. But neither he nor Dillenius, whom he met at Oxford, showed such attention as might have been expected from these high testimonials. They looked upon him as a young innovator, who wished to overturn the old systems, only to exalt his own name upon a fleeting eminence. Dillenius spoke of him as the "young man who confounds all botany,"—treating him with reserve and haughtiness, until his discoveries were truly made known to him. He visited also Martyn, Ward, Miller, Dr. Shaw the celebrated traveller, Peter Collinson, &c.; and on his return to the continent, long continued a correspondence with these naturalists, in the terms of the most sincere friendship; exchanged plants and other objects of natural history, and freely canvassed the different opinions set forth by each; and although these were not always unanimously decided, they appeared to have no influence in disturbing the alliance previously formed.

The Royal Academy of Sciences paid him a very high compliment. Having received permission to attend one of its sittings as a visitor, he was desired to wait a little while in the ante-room; and it was at length announced that the Academy had elected him a corresponding member. He was importuned to remain in

France, and, indeed, his merit everywhere produced the same consequences; but he expressed his firm determination to return to his own country.

From Paris, Linnæus went to Rouen, where he embarked for Sweden, after an absence of nearly three years. During this period he had vastly increased his information, particularly upon botany, and had taken advantage of the Dutch presses, to publish many of his works, which he had either previously written, or brought with him in an imperfect state, while the liberality of his patrons, and some learned societies, defrayed the expense, and even assisted to illustrate some of them with plates.

Upon his arrival in Sweden, Linnæus immediately visited his aged father, and thence proceeded to Stockholm, where he commenced practising as a physician, but met with much opposition, on account of his botanical studies. His perseverance, however, succeeded, and he obtained extensive practice. Writing to a friend, he says, "I am undeservedly got into so much practice, that from seven o'clock in the morning till eight in the evening, I have not even time to take a short dinner." He became acquainted with Captain Triewald, who was endeavoring to establish an Academy of Sciences; and, in conjunction with this gentleman, and the Baron Hopken, a society of some note was instituted, the presidency of which devolved upon himself. This was the origin of the present Academy of Stockholm. By the interest of one of its members, he was soon afterwards appointed physician to the navy; and, with a fixed salary, was chosen to give public lectures upon botany and mineralogy.

By these lucrative appointments, and the money he had saved during his residence in Holland, he was now in a situation of comparative independence, and was enabled formally to apply to Dr. Moreus for the hand of his daughter; and no plea for rejection now existing, Linnæus was united to Sarah Elizabeth Morea, on the 26th of June, 1739.

Our illustrious naturalist might now be said to have reached the height of his earthly happiness—independent in his circumstances; at peace, and beloved by his family; and looked up to and honored by the heads of sciences in Europe. "He was not, however," says one of his biographers, "destined to continue in the career of reputation and prosperity, without exciting envy, jealousy and opposition, from various quarters; and the attacks of his adversaries did not fail to wound his ambition. Yet, remembering the advice of his venerable friend, Boerhaave, and being of too high a cast of mind to entertain asperity, or indulge in splenetic invectives, he wisely resolved to abstain from controversy.

We have now seen Linnæus independent in his circumstances, and happy in his family; but there was still another step at which his ambition grasped,—an ambition in this case laudable. It was the botanic chair of Upsala. He was eager to teach his favorite science in the halls where he had been himself taught, and had often entered with a boyish awe. It was still occupied by Rudbeck, now in the decline of life, and nearly unfit for the exertion of instructing a class. This celebrated man died in the ensuing year, and Linnæus offered himself as a candidate. Notwithstanding his fame, he was disappointed in this object. The University statutes opposed his success; and, according to the regulations, it was given to Dr. Rosen, who had studied longer, and had greater claims upon Upsala. The summit of his wishes, was, however, gained in the following year. He was appointed to the chair of medicine, vacant in the same University; and, by a private arrangement with Dr. Rosen, effected an exchange, receiving the superintendence of the botanic garden, and charge of the whole department of Natural History.

Before his final removal to the professorship of Upsala, the Diet of the kingdom had resolved that expeditions should be undertaken into the least known Swedish provinces, to inquire into their resources, and discover what substances could be usefully

employed in their domestic manufactures. Linnæus was selected to perform the first journey; and, having accepted the appointment, he set out for the Islands of Oeland and Gothland, to endeavor to discover an earth fitted to make porcelain;—this was the foundation of his *Iter Oelandicum*. He was accompanied by six naturalists, but was unsuccessful in the object of the excursion. The tour was nevertheless of great utility: he atter led to mechanics, the arts, antiquities, manners of the people, fisheries, and general natural history. He discovered above one hundred plants which were not previously known to be indigenous, and first pointed out to the natives of those shores the use of Arundo arenaria to arrest the sand, and bind the soil upon the sea-beach.

At the age of thirty-four, we find Linnæus enjoying the fruits of all his labors and perseverance, teaching his favorite science, as its head in Sweden. He enjoyed himself to the utmost: he calls the garden "his Elysium;" and the enthusiasm with which he set about improving it, knew no bounds. At his appointment, every thing was in a state of confusion: the dreadful fire which had converted the best part of Upsala to a heap of ruins in 1702, had extended its ravages also here; and at this period the garden did not contain more than fifty plants that were exotic. Linnæus applied to the Chancellor of the University, Count Charles Gyllenborg, who fortunately was a man of considerable scientific acquirements, and a lover of botany; and he also thought that the fame of her University was of the utmost consequence to Upsala. Through the means of this gentleman, permission was obtained that the whole should be laid out anew. Plans were obtained from the King's architect; and stoves, a greenhouse, and a mansion for the professor, were soon finished. A gardener, whom Linnæus had formerly known with Mr. Clifford, was also engaged, and by the assistance of the friends whom he had acquired during his short visits to London and Paris, the collection of plants was soon increased to above eleven hundred species, independent of

those indigenous to Sweden. In a few years the garden at Upsala ranked equal, if not superior, to similar establishments in Europe. In this he was also assisted by the government, who were most liberal in defraying the expense, and even sending out young men free, to distant countries, which immensely increased the national collections. In a few years, his pupils, of the most persevering minds, were distributed over the whole world; and their various histories would form of itself a volume of the most interesting kind. Of this enthusiasm for science Linnæus thus speaks: "If I look back upon the fate of naturalists, must I call madness or reason, that desire which allures us to seek and to examine plants? The irresistible attractions of nature can alone induce us to face so many dangers and troubles. No science has had so many martyrs as natural history." Many of his pupils were unfortunate, and fell victims to the elements, or diseases of a pestilential climate; but many returned amply compensating themselves for the hardships they had undergone, while their names are handed down to science, in tributes which were bestowed by their venerable preceptor.

The fame and reputation of Linnæus had now gained him both riches and honors. He was admitted a member into most of the scientific societies of Europe. The Imperial Academy distinguished him by the name of Dioscorides Secundus. The Royal Academy of Sciences of Upsala, the Academy of Sciences at Montpelier, the Royal Academies of Berlin and Paris, and Royal Society of London, all ranked him among their members. In 1761, he attained an additional accession of honors, being presented by his sovereign with letters of nobility. His name was changed to Von Linne, and arms were assumed, corresponding with his new rank. But, perhaps, the most flattering testimony of the extent and magnitude of his fame, was that which he received from the king of Spain, who invited him to settle at Madrid, with the offer of an annual pension for life of two thousand pistoles, let-

ters of nobility, and the free exercise of his own religion. He returned his most grateful acknowledgments for the intended honor; and his answer, that "if he had any merits, they were due to his own country," shows the sense of obligation which he felt to the countrymen who had raised him to such an eminence.

The salaries which Linnæus received from his various public appointments, had placed him in affluent circumstances, and allowed him to gratify a wish which he had long indulged,—the possession of a villa, where he could spend a part of his time, away from the hurry and bustle of a public life, and enjoy the quiet delights of a country retirement. He accordingly purchased the villa of Harmanby, about a league from Upsala; and, during the last fifteen years of his life, mostly chose it for his summer residence. Here he kept, comparatively speaking, a little university. His pupils followed him thither, and those who were foreigners used to rent lodgings in the villages of Honby and Edeby, which were both contiguous to his villa. At the distance of about a quarter of a league from this rural abode, he erected a little building upon an eminence, which commanded a view of the surrounding country. In this he kept his collections of natural history, and delivered summer lectures in a familiar manner to his pupils, and foreigners, who came to reside at the above-mentioned villages. During these, the grave and solemn habit of a professor was laid aside, and that of a friendly companion, clothed in a dressing-gown, slippers, and a red fur cap, was assumed.

To the titles with which King Frederick Adolphus honored our great naturalist, he added his private friendship; and Linnæus was often admitted to his company. Natural history was a favorite pursuit of this prince; and a collection built in the castle of Ulrichsdale, about half a league from Stockholm, rapidly increased under the superintendence and arrangement of Linnæus, and furnished the materials for one of his most splendidly illustrated works, entitled, "Museum Regis Adolphi Frederici." The queen

followed the tastes of her husband, and possessed a private collection, also arranged by Linnæus. The leisure time in the summer vacations was often spent in these occupations; and the palaces of Ulrichsdale and Drottingholm, at easy distance from his own villa, were often the scene of his studies, and served as another recreation from the more severe duties of his professorship.

It was at this period of his life, that he was seized with severe attacks of gout, which prevented his repose for many nights at a time, and which he relieved by eating wild strawberries. These were almost the first symptoms of an approaching decay in his vigorous constitution. The excitement of seeing a collection of novelties had a singular effect; and an anecdote is preserved, of his being cured in this way of a severe fit, by the return of a pupil from North America. He was afflicted with a violent fit of the gout, and was obliged to keep his bed, almost totally deprived of the use of his limbs. When he heard of the return of Kalm, with a number of new plants and other curiosities, the desire of seeing these treasures, and the delight which he felt when he saw them, was so great, as actually to make the gout disappear.

The family of Linnæus, consisting of only one son and four daughters, were now grown up. The son, his first-born, of whom so much was expected, inherited a portion of his father's abilities, but was not spared to bring them to that maturity which his constant study for many years would have enabled him. At the early age of ten, he is said to have been acquainted with most of the plants in the botanic garden, and the highest wishes of his father were to render him fit for, and to see him his successor in, the botanical chair.

We have now brought down the principal incidents in the life of this great naturalist, to the time, when, though only fifty-six years of age, he felt the vigor of his constitution impaired, and his versatile mind commencing to wane. He was conscious that he had fulfilled his adopted motto, "Famam extendere factis,' and

was willing to relinquish his office, before its duties became too severe for his declining health; and after academical services for a period of thirty years, Linnæus respectfully entreated his majesty, Gustavus, who had succeeded to the throne upon the demise of his parent, to accept his resignation. His request was declined with the most flattering objections, and the king refused to deprive Upsala of her chief splendor; but he increased the salary, and allowed the young Linnæus to be placed as assistant to the professorship, under the superintendence of his father. Thus did Linnæus see the fulfilment of his brightest hopes, in the appointment of his son, at the early age of twenty-two, to a chair which would have been looked upon through Europe, as the greatest and most difficult to be represented.

Notwithstanding the relief which Linnæus experienced by the assistance of his son, his activity and public duties continued unabated at intervals till 1776, two years before his death, when he suffered a second shock, which had an effect upon his speech, though he still retained a part of his wonted cheerfulness. He was carried to his museum, where he viewed with delight the treasures he had collected together from all parts of the world, and showed additional vigor upon seeing any new or rare production, which the attention of his friends still furnished to him. Towards the end of this year he suffered a third and fatal blow. His right side became completely dead. It was necessary to lead, support, dress, and feed him. His mental faculties wasted with his body, and his earthly frame became to him a burden. In this distressing state he continued nearly twelve months, at times suffering great agony from his previous disease; and, as the powers of his constitution became exhausted, he became insensible to pain, and expired in a gentle slumber, on the afternoon of the 10th of January, 1778, aged seventy years and seven months.

Thus terminated the active and ever-searching life of this pious and illustrious man, depriving natural history of her bright-

est ornament, and his country of a fellow-citizen and professor, whose loss could not be repaired throughout all Europe. Every human honor was paid to his remains, and the sorrow of his countrymen was without bounds. A general mourning was ordered at Upsala. To quote the words of their sovereign, they had "*lost, alas! a man, whose celebrity was as great all over the world, as the honor was bright which his country derived from him as a citizen. Long will Upsala remember the celebrity which it acquired by the name of Linnæus!*"

In foreign lands equal regard was paid to his memory. He was eulogised in the Royal Academy by Condorcet and Vicq d' Azyr, and his bust was erected under the highest cedar in the Royal Gardens. Dr. Hope, the Professor of Botany in the University of Edinburgh, had a monument to his name erected in the botanic garden. Many societies have been formed under the auspices of his name, of which the most important was instituted in 1788, by the exertion of the late Sir James (then Dr.) Edward Smith. This possesses the whole library, herbaria, and manuscripts of the illustrious person whom it records. They were purchased by the members, at the demise of their respected founder and president, and they rightly judged that the Linnæan Society of London was the only place where these monuments of his labors and abilities could be with propriety deposited.



Indian Chrysanthemum.

NAT. ORDER.

Compositæ.

CHRYSANTHEMUM INDICUM. INDIAN CHRYSANTHEMUM

Class XIX. Syngenesia. *Order I.* Polygamia, Superflua.

Gen. Char. *Calyx*, hemispherical, imbricated. *Scales*, marginal, membranaceous. *Pappus*, margined. *Receptacle*, naked.

Spe. Char. *Leaves*, stem-clasping, oblong; the upper serrate, the lower toothed.

The *root* is long, crooked, knotty, tough, externally of a dark brown, and internally of a light cream color; the *stem* rises from two to three feet in height, somewhat woody, much branched, beset with numerous leaves, bearing some resemblance to those of Mugwort, of a grayish color; the *flowers* are sweet smelling, and, on being pressed, give forth a very agreeable fragrance; they are produced on the summits of the branches, in a loose sort of cluster, (those which terminate the main stem, grow to the size of a large carnation pink,) of a dark purple color; they are double, or rather between semi-double and double; the *florets* of the radius at first are perfectly tubular, or quilled, but, as they advance, split gradually downward on the inside, their outside being of a grayish tint, invisible in most of the florets, especially the younger ones, as it gives them a particolored appearance; these florets do not in full occupy the receptacle, leaving room for others in the centre, of a different form, and yellow color, which on examination appear to have their parts perfect, and also those of the radius; the *receptacle* is beset with membranous paleæ, or chaffy scales, a circumstance which would lead us to consider this plant rather as an *Anthemis*, than a *Chrysanthemum*, of which it has the calyx, with the foliage of Mugwort.

New as this plant is to us, it appears to have been cultivated in China for ages. Linnæus, who describes it in his *Species Planter*, refers to a figure in the *Hortus Malabaricus*. His figure and the description accompanying it, agree generally with our plant; but the flowers are more double, much smaller, less clustered, and do not correspond in color, yet there can be no doubt but that our plant is a variety of the same. It is there described as growing in sandy situations, and having green petals.

Rumphius, an ancient author, observes, that these plants were originally brought from China, where they flower in May and June; that there are two sorts principally cultivated in India,—the white and the yellow flowered; and a third sort, differing only in the color of its flowers, which are red. The variety here described began to be known among them at Amboyna; but the flowers did not expand well, owing to their being produced at the rainy season, and they decay without producing any seed.

He tells us further, that it is cultivated chiefly for pleasure; that the natives and the Dutch plant it mostly in the borders of their gardens, where it does not thrive as well as when planted in pots; and that, if it remains more than two years in the same spot, it degenerates, becomes less woody, and often wholly perishes; that the Chinese, by whom it is held in high estimation, pay great attention to its culture. They set it in pots and jars, and place it before the windows of their apartments, and at their entertainments decorate their tables with it. On these occasions, he that produces the largest flower, is considered as conferring the greatest honor on his guests. Besides these three varieties already mentioned, they have a fourth, which is still more rare, and whose flowers are of a greenish ash color. All these varieties growing in separate pots, they place in certain quarters, which they particularly wish to decorate; and the effect they produce is highly pleasing. In the cultivation of this plant they spare no pains:—the shorter it is, and the larger its flowers, the more it is esteemed.



Eastern Puppy.

NAT. ORDER.

Papaveracæ.

PAPAVER ORIENTALE. EASTERN POPPY.

Class XIII. Polyandria. *Order I.* Monogynia.

Gen. Char. *Corolla*, four-petalled. *Calyx*, two-parted. *Capsule*, one-celled, opening by pores under the persistent stigma.

Spe. Char. *Calyces* and *Capsules*, smooth. *Leaves*, incised, and embracing the stem.

The *root* is perennial, creeping, branched, and somewhat jointed or knotty; the *stalk* is generally erect, and rises from three to four feet in height, branched, of a glaucous green color, round, and cylindrical; the *leaves*, which are always very large, are alternately placed upon the stalks, lobed, deeply cut into various segments, and very closely embracing the stem; the *flowers* are large, solitary, and terminal; the *calyx* consists of two very smooth ovate, concave segments, which fall when the flower expands; the *petals* are large, roundish, entire, somewhat undulated, and of a beautiful orange red color; the *filaments* are numerous, slender, shorter than the corolla, and support erect, compressed anthers; the *germen* is roundish, with a many-rayed stigma; the *capsule* is smooth, large, and filled with a large number of small seeds.

This species of the Poppy is a native of the warm regions of Asia. In Persia and Arabia it is extensively cultivated for the manufacturing of opium, for which purpose it is considered but little, if at all, inferior to the *Papaver somniferum.* Every part of the plant possesses the peculiar odor and taste of opium; but the milky juice, which is the active ingredient, principally resides in the capsules, and is gathered in a similar manner as that of the

somniferum. The seeds, when perfectly ripe, are said to contain but very little of the narcotic principle; and, being mostly composed of a mucilage, are often used as an article of food. They have rather a sweetish, bland taste, somewhat like almonds.

The opium from this plant is mostly procured from Arabia, and is often found to be of a poor quality. It is said that the inhabitants frequently bruise the capsules together with the seeds; boil them in water, and evaporate the decoction to the consistence of a sirup, which is mixed with the genuine drug, for the sake of gain: the juice of other plants have been mixed with it, which is a fraud that is sometimes attended with serious consequences, though with difficulty detected.

Water extracts some of its virtues by infusion, assuming a brown color; and, when a solution of iron is added to it, becomes black, indicating the presence of astringent matter. It is in part soluble in alcohol, wine, vinegar, &c. One of the chief constituents of opium is a volatile matter, which is so active as to occasion giddiness, trembling, &c., in the persons employed in collecting the juice. This principle is extracted by water and spirit in distillation; hence the decoction of opium impairs its virtues. Roasting, also, by depriving it of this active volatile matter, injures the drug. By age these volatile particles become dissipated; and, to prevent this as much as possible, the gum should be always kept in wet, moist situations.

When opium is taken in large doses by the Turks, it occasions a remarkable exhilaration of spirits: they have various agreeable images before their eyes; lose all fear of death; and occasionally become very violent and ferocious: in fact, it acts upon them in a similar manner that intoxicating liquors do upon us; and they indulge in it in consequence of their religion forbidding any excess in intoxicating drinks. Some of them will take as much as four or five drachms, or even an ounce, daily, without apparently any injury, not having any of the above symptoms, but only a degree

of languor and sleepiness, which continue only for a short time, unless the dose be renewed. Such practises, however, render them very stupid, sorrowful, and inattentive to the common concerns of life.

Medical Properties and Uses. Opium is one of the most powerful remedies we possess, in allaying irritability and pain; and, in very small doses, acts as a stimulus, occasioning temporary excitement. The diseases in which it has been administered are too numerous for us to enter minutely into the subject at this time; and we shall therefore refer the reader to a more general description, under the head of *Papaver somniferum*, Vol. II., page 133 of this work. We will, however, enumerate some of the principal diseases in which this drug has been so highly extolled, without attending to the various opinions of its *modus operandi.*

In *intermittents*, a full dose of opium, given a short time before the paroxysm is expected, is said to be one of the most effectual remedies for setting it aside; but it should never be continued between the paroxysms, as it will have a tendency to create very unpleasant symptoms.

In *continued fevers*, it will not be generally admissible, unless there should be some symptom present, indicating its use, as diarrhœa, watchfulness, or the low delirium of typhus, connected with a state of irritability from want of sleep; for it will probably occasion congestion about the head, and constipation, symptoms which are to be dreaded in fevers.

In all *spasmodic diseases*, opium is by a certain class of physicians considered the great sovereign remedy, particularly when the spasm is occasioned by calculi irritating the gall ducts, or ureters: also in colic, spasms of the chest and stomach, and tetanus. In most cases where spasm exists, it is advisable, unless any idiosyncrasy in the patient should forbid its exhibition.

NAT. ORDER.

Amaryllidaceæ.

AMARYLLIS FORMOSISSIMA. JACOBEAN AMARYLLIS.

Class VI. Hexandria. *Order I.* Monogynia.

Gen. Char. *Perianth*, declined. *Tube*, scarcely any, upper segments reflex, lower sloped downwards, convolute at the base. *Filaments*, inserted equally, with a connecting membrane at the base of the perianth, fasciculate, declined and recurved at the style. The upper *Sephaline*, and the lower *Petaline*, shorter than the others. *Anthers*, pendulous, affixed one-third from the top.

Spe. Char. *Perianth*, six-parted, somewhat campanulate. *Segments*, acuminate; the three upper-ones forming a kind of crown. *Leaves*, ensiform.

This beautiful *plant* is a native of South America, and, according to Linnæus, was known in Europe as long ago as the year 1593. It is also described by Parkinson in 1629, and placed by him among the Daffodils. At that time stoves and green-houses were unknown: consequently it is not to be wondered why it was not more generally cultivated.

Propagation and Culture. This is certainly one of the most beautiful plants of the flower garden, and is considerably cultivated in some of the extensive gardens in England; but in the United States it is at present but little known. The *roots* send forth a large number of offsets, especially when they are kept in a moderate warmth in winter. The roots of this plant will live in a good green-house, or may be preserved through the winter under a common hot-bed frame; but in this case it will not flower so



1. Amaryllis Lily. 2. Amaryllis Jacobean.

often, nor send out as many offsets, as when they are placed in a moderate stove in winter. This sort will produce its flowers two or three times in a year, and is not regular to any season, but may be found in blossom from the beginning of March till the beginning of September. The flowers are always produced when the roots are in full vigor. The bulbs, when they are to be left in the ground all the winter, should be planted at least four inches deep in the ground. In general, however, it is safer to take up the bulbs, and to keep them dry all the winter, like tulips. These bulbs will flower beautifully, like hyacinths, in glasses: they will also flower if hung up in a room, and kept moist by wrapping moss around them. When planted either in pots or in the open ground, it should be in rich soil; and the bulbs should be kept dry during winter, and well watered just before they are going into flower in spring.

This plant is also propagated by offsets, which may be taken off every year. The best time to part these roots is in August, that they may have time to take good root before winter; and, in doing this, great care should be taken not to break off the fibres from their roots. They should be planted in pots of a middling size, filled with light kitchen-garden earth; and, if they are kept in a moderate degree of warmth, they will produce a larger quantity of flowers.

Medical Properties and Uses. This plant has never been sufficiently tested in regard to its medical qualities, to allow us to enter minutely into the details of its effect upon the human system. The petals were formerly employed as a conserve, and highly recommended for coughs, colds, and catarrhal affections. It is prepared after the following manner: Take of the dried petals, four ounces; *Ulmus fulva*, slippery elm bark, eight ounces; white sugar, two pounds; *Capsicum bacatum*, cayenne pepper, half an ounce; all finely pulverized. Mix, by adding sufficient warm water to make it into bread. Roll into small cakes, and dry.

NAT. ORDER.

Amaryllidaceæ.

AMARYLLIS BREVIFLORA. AMARYLLIS LILY.

Class VI. Hexandria. *Order I.* Monogynia.

Gen. Char. *Leaves*, hiemal, arcuate. *Scape*, autumnal, before the leaves. *Umbel*, many-flowered, pedunculated, divaricate. *Germen*, triangularly obovate. *Tube*, narrow, funnel-shaped. *Petaline filaments*, adhering to the petals. *Anthers*, incumbent, attached in the middle. *Capsule*, obovate, disposed to burst.

Spe. Char. *Leaves*, lorate-linear, channelled. *Perianth*, funnel-shaped. *Segments*, acuminate, recurvedly spreading.

The *roots* of this family of plants are nearly all bulbous, from the size of a walnut to that of a large turnip; the *calyx* and *corolla* are confounded, superior, regular, colored, and the former overlapping the latter; the *stamens* are six, arising from the sepals and petals, sometimes cohering by their dilated bases into a kind of cup; sometimes an additional series of barren stamens is present, often forming a cup which surmounts the tube of the perianthium; *anthers* bursting inwardly; *ovarium* three-celled, the cells many-seeded, or sometimes one or two-seeded; *style* one; *stigma* three-lobed; *fruit* three-celled and three-valved; *capsule* with loculicidal dehiscence, or a three-seeded berry; *seeds* with either a thin membranous, or thick and fleshy testa; *albumen* fleshy; *embryo* nearly straight, with its radicle turned towards the hilum.

Propagation and Culture. This species, which is remarkable for its beautiful flowers, is a native of the Cape of Good Hope;

but has now become naturalized in Madeira, and almost so in Portugal and Italy. It is so hardy in the English gardens, that it may not only be grown in the open air, but it does not require taking up in winter. Two things, however, we are informed, are necessary to its flowering, viz.: "a strong growth of the leaves, and absolute rest from midsummer till the period of flowering in September. If the leaves sprout early, and are so much damaged by severe frosts, that a vigorous growth does not ensue in spring; or if they have not moisture in September to promote the blossoming, it will fail, and in the latter case the abortive flower-buds will be thrown out of the ground when the leaves sprout afterwards." On this account it is recommended putting a hand-glass or some other covering over the bulbs, so as to keep off the rain in a wet summer. There are also two other varieties cultivated in gardens, the *Amaryllis pallida*, which is paler than the species here represented, and the *Amaryllis latifolia*, which has broader leaves. The bulbs of all the varieties are very large, and should be planted in July and August, in a very richly manured, loamy soil, in front of a south wall, where they will flower abundantly.

Medical Properties and Uses. The medical qualities of this plant, together with all its varieties, are that of a poisonous character, and consequently is but little used in medicine. The best mode of obtaining its virtues is by procuring an extract, after the following manner. Take of the leaves and flowers any quantity, press them into a vessel, and add sufficient alcohol to cover them: let this stand for fourteen days: then press out the liquor, and filter; after which place the tincture so filtered in tin or earthen pans, and expose to the sun for evaporation: after it is reduced to the consistency of an extract, it should be gathered, and placed in earthen pots, tightly covered, when it will keep good for any length of time. Given in moderate doses, its effects are similar to those of *Belladonna.*

NAT. ORDER.

Lomentaceæ.

MYROXYLON PERUIFERUM. SWEET-SMELLING BALSAM.

Class X. Decandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, bell-shaped, five-toothed. *Petals*, five; the upper one larger than the others. *Germen*, longer than the corolla. *Legume*, with one seed only at the extremity. *Leaves*, coriaceous, persistent, and, as well as the branches, glabrous. *Legumes*, with the wing thick on one side, veinless on the other. *Style*, deciduous.

Spe. Char. *Leaves*, abruptly pinnate, alternate. *Leaflets*, nearly opposite.

This is a very beautiful tree: the *trunk* rises to a considerable height, is straight, smooth, and covered with a compact, coarse, heavy *bark*, externally of a gray color, internally of a pale yellow, and abounding with a very fragrant resin, which also pervades every part of the tree; the *branches* extend almost horizontally, and are covered, like the trunk, with coarse bark; the *leaves* are alternate, and abruptly pinnate; the *leaflets* are nearly opposite, petiolate, ovate, lanceolate, with the apex somewhat obtuse and emarginate, entire, very smooth, shining; the *midrib* on the under surface, pubescent; the *common petiole* is round and pubescent; the *leaflets* vary in number, from two to four or five pairs; the *flowers* are produced on axillary, erect *racemes*, longer than the leaves; the *peduncles* are slender, roundish, and pubescent, each accompanied by a very small, erect, ovate, concave *bractea;* the *pedicels* are erect; the *calyx* is bell-shaped, dark green, and divided into five small, nearly equal segments; but one of them so far



Sweet-smelling Balsam.

separated, as to be found under the germen; the *corolla* consists of five white *petals*, four of which are narrow, equal, lanceolate, and larger than the calyx; the fifth reflexed, broad, and more than double the size of the others; the *stamens* are inclined, and inserted into the calyx, bearing elongated, sharp-pointed, sulcated *anthers;* the *germen* is oblong, pedicellated; the *style* is short, subulate, crooked, and crowned with a simple *stigma;* the *pericarp* is of a straw color, club-shaped, somewhat curved and pendulous, globular near the top, and terminated by the curved style; the *cell*, which forms the curved part, contains a single seed, which is crescent-shaped, and projects from the cell.

The *Peruvian Balsam-tree* is a native of South America, inhabiting the warmer regions of that continent, growing on the mountains of Panatalmas, in the forests of Paxaten, Muna, Cuchero, and Puzuzu, and in some of the warm situations near the river Maranon; flowering from August to September. This tree was first discovered by Mutis, about the year 1781, who sent a specimen of it, both in fruit and flower, to the younger Linnæus. The natives inhabiting the countries where this tree grows, call it *Quinquino:* they use the bark as perfume. The *Peruvian Balsam*, and the *Balsam of Tolu*, are both the product of this tree:—formerly, it was supposed that the latter balsam was the product of a different tree from that which yields the former; but it has been ascertained that both balsams are the product of the *Myroxylon Peruiferum.* We are also credibly informed that the balsam is procured by incision at the beginning of the spring, when the showers are frequent, short, and gentle: it is collected into bottles, where it keeps liquid for some years, in which state it is called *white liquid balsam.* But when the Indians deposite the liquid in mats or calabashes, which is generally done in Carthagena and in the mountains of Tolu, after some time it condenses and hardens into resin, and is then denominated *dry white balsam*, or *balsam of Tolu*, by which name it is distinguished in the druggists' shops. M. Val-

mont de Bomare says, in his Dictionary of Natural History, that if an extract be made from the bark, by boiling it in water, it remains liquid, and of a blackish color, and is known under the appellation of *black Peruvian balsam.*

Sensible and Chemical Properties. Genuine *Peruvian balsam* is of a deep reddish brown color, very viscid, and of the consistency of honey, when first taken from the comb: it has a warm, aromatic, and slightly bitter taste, and, when swallowed, leaves a somewhat acrid sensation in the throat: its odor is very fragrant. Distilled with water, it yields a small quantity of reddish limped oil; and benzoic acid sublimes in the neck of the retort: the remainder is resin. When boiled with water, the liquid becomes acidulated, reddens vegetable blues, and deposites on cooling crystals of benzoic acid. It dissolves completely in ether, and also in alcohol; but the latter requires to be in considerable quantities. The alkalies and their carbonates, form with it thick masses, which, on the addition of sulphuric acid, lets fall a resinous matter, and benzoic acid crystallizes. Treated with the nitric and muriatic acids, the presence of prussic acid is detected, benzoic acid sublimes, and the residual matter is artificial tannin. Mr. Hatchett found that when this is heated with sulphuric acid, artificial tannin is also formed; and the charcoal remaining amounts to no less than 0·64 of the original weight of the balsam. At 555° the balsam begins to boil when exposed to some heat in a water-bath, and some gas is discharged. At 594° the oil, mixed with a little water, comes over quite fast. Lichtenberg kept four ounces of balsam at the temperature of 617° for two hours, and obtained two ounces of a yellowish oil, and a crystallized mass of benzoic acid; which, together with the water, weighed six drachms and a half. The gas obtained amounted to fifty-eight ounce measures, thirty-eight being carbonic acid: the rest burnt like oleifiant gas. From the analysis of Stoltze, 1000 parts of balsam consist of 24 of brown, nearly insoluble resin, 207 of soluble resin, 690

of a peculiar kind of volatile oil, 64 of benzoic acid, and 6 of extractive matter.

Tolu Balsam. This balsam is, as we noticed, the *white balsam of Peru*, hardened by exposure to the atmosphere. It comes to the States in gourd-shells or calabashes; its odor is extremely fragrant, somewhat resembling that of lemons; its taste is aromatic, and somewhat sweetish; it is of a reddish brown color, and of a thick, tenacious consistence, becoming brittle by age. In distillation with water, it yields a small portion of volatile oil, and impregnates the water with its odor: if the process be continued, a quantity of benzoic acid sublimes. It is soluble in alcohol and ether, and also in the alkalies. From experiment we have ascertained, that when dissolved in a very small quantity of the solution of potass, its odor is lost, and it acquires the smell of the clove pink. When digested in the sulphuric and nitric acids, a considerable quantity of pure benzoic acid sublimes, and with the latter some trace of prussic acid is also evolved.

Medical Properties and Uses. *Peruvian balsam* is stimulating and tonic, and has also been regarded as expectorant: hence, it has been recommended as an efficacious remedy in obstinate coughs, chronic asthma, and other pulmonary diseases, when attended with an increased secretion of the mucus; but, from its heating and stimulating qualities, it is improper in those cases which are attended with inflammation. In chronic rheumatism, gleets, seminal weaknesses, and leucorrhœa, as well as in some cases of debility, its tonic powers appear to have proved efficacious. It has been recommended to be dropped into the ear, combined with ox-gall, in the proportion of one part of the former to three of the latter, in fœtid discharges of that organ. Formerly, it was much used as a local application to foul ulcers, especially those of an indolent kind; and, in the hands of the celebrated Mr. Whately, it appears to have been a very successful application.

Peruvian balsam may be taken in doses of from thirty to sixty

drops, in any proper vehicle, and repeated at intervals, according to circumstances. *Tolu balsam* possesses similar qualities to the former, and is applicable to the same diseases. In paralytic affections, particularly those following the use of lead, the *balsam of Peru* may be given with the best effects, in doses, as much as the stomach will retain. This medicine seems in this disease to act upon the system generally, improving the health and appearance of the patient; and, as his strength returns, the disease subsides.

It was once employed as an external application in paralytic and rheumatic affections, but there are other applications much more valuable and efficacious. It was considered by former practitioners a great medicine to check the morbid effects which commonly succeed punctures of nerves, tendons, &c. For this purpose it was dropped into the wounded part.

Myroxylon Healing Salve. Under this title there was formerly a very celebrated salve vended, which was said to cure all kinds of sores, bruises, swellings, sprains, &c. How much credit can be given to those reports, we leave for others to decide, but we will proceed to give the formula for preparing the salve, according to the manuscript recipe of a very celebrated ancient physician. Take of the fresh green leaves of this tree, as many as can be pressed into a large copper kettle; add as much common lard as will mix in with the leaves; place the vessel so filled over a slow fire, and let it stew or steep for several hours; then strain off, and press the leaves, that they may be thoroughly cleaned. Sometimes a little beeswax was added, in order to harden it. This was used for all kinds of purposes. It was also said to be an infallible remedy for the piles. Placed upon a lint, or soft piece of leather, and applied over sores of a gangrenous nature, it is said to be both healing and cleansing.



Marum Germander. *Chinese St. Johns-Wort.*

NAT. ORDER,

Verticillatæ.

TEUCRIUM MARUM. MARUM GERMANDER.

Class XIV. Didynamia. *Order I.* Gymnospermia.

Gen. Char. Corolla, superior. *Capsule,* two-parted, divided from the stigma.

Spe. Char. Leaves, ovate, acute, petiolate, tomentose. *Florets,* racemes in twos.

The *root* of this plant is perennial, long, ligneous, and divided into many fibrous branches: the *stalks* are numerous, slender, shrubby, woolly, somewhat branched, and rise from one to two feet in height: the *leaves* are oblong, pointed, entire, and near the bottom obscurely lobed; the upper *pagina* is of a pale green color; the under, white and downy; they are placed in pairs upon slender footstalks, which become gradually elongated towards the lower part of the stems; the *flowers* are produced in spikes, and all stand on the same side, in pairs, upon short peduncles; the *corolla* consists of a short curved, cylindrical tube, which divides at the limb into two lips; the upper lip is short, erect, and divided to the base, by which it seems lost in the under lip, which is long, of a pale purple color, and separated into six lobes; of these the outside one is the largest: the *calyx* is tubular, whitish, woolly, and cut into five short, pointed segments; the *filaments* are two long and two short, slender, white, and furnished with simple anthers; the *germen* is quadrified, and supports a slender style, with a bifid stigma; the *seeds* are four, of a brown color, and lodged in the calyx, which serves the purpose of a capsule.

This little *shrub* flowers from July until September. It is a

native of Spain, and is said to grow plentifully, also, in Greece, Egypt, Crete, Syria, and in some of the warmer parts of South America.

Whether this plant was known to the ancients or not, does not appear from the descriptions of Theophrastus and Dioscorides. Cortusus discovered that cats are remarkably fond of *Marum*; and from this circumstance we are enabled with certainty to trace back its history to his time; for ever since it has been known by the name of Cat-thyme. There occurs, however, considerable difficulty in ascertaining its synonyma; and probably some of those to which we have referred are not sufficiently identified. It was first cultivated in England by Parkinson, in 1640, and is now to be found in many of the gardens throughout Europe and the United States.

Medical Properties and Uses. The leaves and younger branches of *Marum*, when recent, on being rubbed between the fingers, emit a volatile, aromatic smell, which readily excites sneezing; but to the taste they are bitterish, accompanied by a sensation of heat and acrimony. Lewis says that the *Marum* loses but little of its pungency on being dried; and in this respect it differs remarkably from many other acrid herbs, as those called anti-scorbutics. The ancients, to whom this plant was well known, attributed to it a peculiar antiseptic and alexipharmic power, and for many ages it had the character of being remarkably efficacious in all pestilential and putrid diseases. With a view to this, it was afterwards directed in the composition of several officinal medicines, supposed to be antidotes to various kinds of poisons and infections; and we are told that it was successfully used in the plague, which raged in Turkey. But, notwithstanding this plant was such a celebrated remedy, and held a place in both the London and Edinburgh Pharmacopæias, yet it appears to be a very insignificant article of the Materia Medica, and is therefore very justly fallen into disuse.

NAT. ORDER.

Rotacæ.

HYPERICUM MONOGYNUM. CHINESE ST. JOHN'S-WORT

Class XVIII. Polyadelphia. *Order III.* Polyandria.

Gen. Char. Calyx, five-parted. *Petals*, five. *Filaments*, many connected at the base into five bundles.

Spe. Char. Stem, ancipital. *Leaves*, blunt, with pelucid dots.

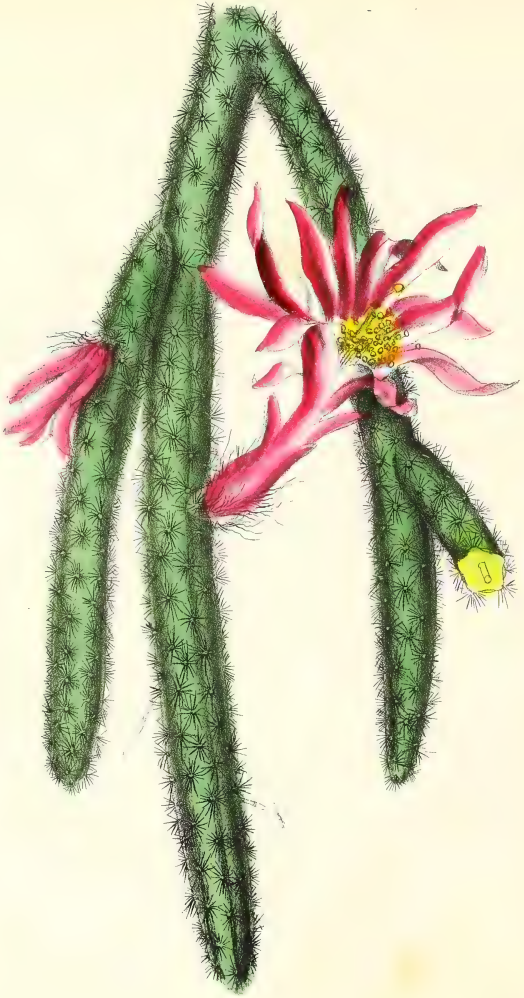
This species of the *Hypericum* generally grows to the height of about a foot and a half; the *root* is perennial, ligneous, divided and sub-divided into numerous small branches, and covered with a straw-colored bark; the *stalks* are round, smooth, of a light color, and towards the top send off many opposite floriferous branches; the *leaves* are without footstalks, and placed in pairs; they are entire, oval, and beset with a great number of minute transparent vesicles, which have the appearance of small perforations through the disc; the *flowers* are numerous, pentapetalous, terminal, of a deep yellow color, and grow in a corymbus, or in clusters, upon short peduncles; each *petal* is of an irregular oval shape, and, on the under side, near the apex, is marked with many blackish spots; the *calyx* consists of five persistent acute leaves; the *stamens* are numerous, and most generally are found united at their base into three portions, or bundles; the *anthers* are yellow, and marked with a small black gland; the *styles* are three; and the *capsules* have three cells, which contain many small oblong, brownish seeds. It grows most common in woods, and uncultivated grounds; and flowers in July.

Of this genus one hundred and thirty-four are enumerated,

all possessing similar properties; fourteen are described with five styles; forty-six with three; two with two styles; and two with one. When the term *Monogynum* was first applied to this species, it was a proper one, there being then only one in that predicament. Another having since been discovered, it ceases to be so now. Some have, indeed, doubted the propriety of using the word *Monogynum* at all, alleging, in reality, there are five styles, which manifestly show themselves above, though they coalesce below. Such is the opinion of some, but others think differently.

This elegant native of China is now quite common in the green-houses, both in this country and England. Mr. Miller has given us a minute description of this plant, and observes that it is more valuable, as it continues in flower a great part of the year. He observes, further, that if planted in a very warm situation, it will live in the open air; but that those plants which stand abroad will not flower in winter, as well as those which are removed into shelter in Autumn. It may be propagated by slips from the root, or by layers.

Medical Properties and Uses. This plant has a bitterish, subastringent taste, and a sweetish smell. It was in great repute with the ancients, who prescribed it in hysteria, hypochondriasis, and mania. They also imagined that is had the peculiar power of curing demoniacs; and thence obtained the name of *Fuga dæmonum.* It was also recommended internally for wounds, bruises, ulcers, hæmoptysis, mictus, cruentus, gravel, dysentery, agues, worms, and outwardly as an anodyne, and as a discutient and detergent. However, it is now very rarely used, and its name is omitted in the Materia Medica. In the London Pharmacopœia, the flowers only are directed to be used, as containing the greatest proportion of the resinous, oily matter in which the medical efficacy of the plant is supposed to reside.



Creeping Cactus.

NAT. ORDER.

Cacteæ.

CACTUS FLAGELLIFORMIS. CREEPING CACTUS

Class XII. Icosandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, superior, many-cleft. *Segments*, imbricate. *Petals*, numerous, inserted in several series; the interior ones larger. *Stigma*, many-cleft. *Berry*, one-celled, many-seeded.

Spe. Char. *Leaves*, fleshy and spine-like. *Stem*, angular, two edged-like.

The *sepals* of this plant are numerous, usually indefinite, and confounded with the petals, either crowning the ovarium, or covering its whole surface; the *petals* are numerous and indefinite, arising from the orifice of the calyx, sometimes irregular; the *stamens* are indefinite, more or less cohering with the sepals and petals; the *filaments* are long and filiform; *anthers* ovate, versatile; *ovarium* fleshy, inferior, one-celled, with numerous ovula arranged upon parietal placentæ, equal to the lobes of the stigma; the *style* is filiform; the *stigmas* are numerous, collected in a cluster; *fruit* succulent, one-celled, many-seeded, either smooth or covered with scales, scars, or tubercles; *seeds* parietal, or, having lost their adhesion, nestling in the pulp; ovate or obovate, without albumen: *embryo* either straight, curved, or spiral, with a short, thick radicle; *cotyledons* flat, thick, foliaceous, sometimes almost obsolete (in the leafless species), succulent shrubs, very variable in form; *stems* usually angular, or two-edged, or foliaceous; *leaves* almost always wanting: when present, fleshy, smooth, and entire, or spine-like;

flowers either showy or minute, usually lasting only one day or night, always sessile.

America is the station of the order; no species appearing to be natives of any other part of the world. In this country they are abundant, especially in the tropics, extending a short distance beyond them, both to the north and the south. Decandolle states that 32° or 33° lat. is the northern limit of the order; but it is certain that a species is either wild or naturalized on Long Island, in lat. 42° north; and that there is another, somewhere about 49° in the Rocky Mountains.

Propagation and Culture. Hot, dry, exposed places, are the favorite stations of this genus of plants, for which they are peculiarly adapted, in consequence of the small quantity of evaporating pores which they possess, as compared with other plants; a circumstance which, as Decandolle has satisfactorily shown, will account for the excessively succulent state of their tissue. No plant is more easily propagated by cuttings, than the Cactus and its varieties. Those who are familiar with its cultivation recommend that the cuttings be laid in a dry place, for the space of two or three weeks; then to be planted in pots, filled with a mixture of loam and lime rubbish, having some stones laid in the bottom of the pot, to drain off the moisture; and afterwards plunged into a gentle hot-bed of tanner's bark, to facilitate their rooting; and giving them once a week a gentle watering: this should be done about the first of July. We are informed that this plant has never been known to perfect its seed in Europe.

Medical Properties and Uses. The juice of the *Cactus flagelliformis* has been considered valuable as an alterative, and, consequently, has been administered in various disorders arising from an impure state of the blood. It has also been favorably noticed as a medicine to correct and restore the tone of the stomach. The most improved mode of administration is in pills made from the extract. Dose, from one to three five-grain pills, twice a day.



Belladonna Lily.

NAT. ORDER.

Solaneæ.

BELLADONNA PURPUREUS. BELLADONNA LILY.

Class VI. Hexandria. *Order I.* Monogynia.

Gen. Char. *Leaves,* hiemal, arcuate. *Scape,* autumnal, before the leaves. *Umbel,* many-flowered, pedunculated, divaricate. *Germen,* triangularly obovate. *Tube,* narrow, funnel-shaped. *Anthers,* incumbent.

Spe. Char. *Leaves,* lorate-linear, channelled. *Perianth,* funnel-shaped. *Segments,* acuminate, recurvedly spreading.

This species of the *Belladonna,* has a thick, whitish *root,* which is perennial, and sends forth strong branched, purple-colored stems, from four to six feet in height; the *leaves* are of unequal size, entire, oval, pointed, and stand in pairs, upon short footstalks; the flowers are of a light pink color, but striped with a purple red, large, pendent, bell-shaped, furrowed, and the limb cut into five segments. The whole plant is covered with very fine hairs or down. The *flowers* appear in June or July; but the seeds are not ripe till September, when they acquire a shining black color. It grows in shady and stony waste grounds, but is not very common in any country except China. A few plants have been sent to this country, but will not flower unless kept in the hot-houses, and with great care.

Whether this plant is the "king of poisons," as mentioned by Dioscorides, or not, botanists have not yet ascertained; but it has certainly been long known by the Chinese, as a strong poison, of the narcotic kind; and the berries, though less powerful than the

leaves, furnish us with numerous instances of their deleterious and fatal effects, acting upon children, in all respects similar to those of the *Atropa belladonna.* The number of these berries necessary to produce deleterious effects, may probably depend upon the state of maturity in which they are eaten. If not more than three or four be swallowed, according to Haller's account, no very serious consequences are apprehended; but, when a greater number of the berries are taken into the stomach, scarcely half an hour elapses before violent symptoms supervene; snch as vertigo, delirium, great thirst, painful deglution, and retching, followed by furor, stridor dentium, and convulsions; the eyelids are drawn down, the uvea dilated and immovable; the face becomes red and tumid, and spasms affect the mouth and jaw; the general sensibility and irritability of the body suffer such great diminution, that the stomach often bears large and repeated doses of the most active emetics, without being brought into action; the pulse is small, hard, quick, and subsultas tendinum, risus sardonius and coma, generally precede death. The body being opened, inflammation will be discovered in the intestines, mesentery and liver. We are informed of a case where the stomach of a child was found eroded in three places. It may be necessary to remark, that vinegar, taken freely into the stomach, has been found very efficacious in obviating the effects of this poison: evacuations should, however, in this case, be always first promoted.

Many other recent facts of the same kind might be quoted from various publications. Ray found, by applying the leaves of this plant near the eye, a remarkable relaxation of the uvea was produced. Sauvages supposes that this was the plant which produced such strange and dreadful effects upon the Roman soldiers during their retreat (under the command of Anthony) from the Parthians. They are said to have "suffered great distress for want of provisions, and were urged to eat unknown plants. Among others, they met with an herb that was mortal; he that

had eaten of it, lost his memory and his senses, and employed himself wholly in turning about all the stones he could find; and, after vomiting up bile, fell down dead." The Scotch historian, Buchanan, relates, that the Scots mixed a quantity of the juice of the Belladonna, with the bread and drink which by their truce they were to supply the Danes with, which so intoxicated them, that the Scots killed the greatest part of Sweno's army while asleep.

Propagation and Culture. All the various varieties of the *Belladonna* can be greatly improved by cultivation: they require a strong, rich, loamy soil, and shady situations, where, if carefully attended, they will grow to a great size. This plant is not increased by cuttings, like many others, but mostly by seeds, or the berries, which should be gathered when ripe, kept in a dry place for the winter season, and planted early in the spring, about two inches deep, in pots, or in the margin of the garden. If in pots, they require to be watered, in dry weather, every day, especially after they have been grown to some size: a neglect of plenty of water, where they are in pots, will not ensure a luxuriant growth. The roots are sometimes parted, and the plant increased by layers: this should be done early in the spring. For medicinal purposes, the roots (if used) should be gathered late in the fall, after the top has gone to seed.

Medical Properties and Uses. The leaves of the Belladonna were first used externally to discuss schirrhous and cancerous tumors, and also as an application to ulcers. Their good effects in this way at length induced physicians to employ them internally for the same disorders; and we have a considerable number of well authenticated facts, which prove them a very serviceable and important remedy. But it must likewise be confessed, that many cases of this sort have occurred, in which the Belladonna has been employed without success: this, however, may be said of every medicine; and though Dr. Cullen repeatedly experienced

its efficacy, yet the facts he adduces in confirmation of the utility of this plant, are clear and decisive. He says: "I have had a cancer of the lip entirely cured by it; a scirrhosity in a woman's breasts, of such a kind as frequently proceeds to cancer, I have found entirely discussed by the use of it; a sore a little below the eye, which had put on a cancerous appearance, was much mended by the internal use of the Belladonna; but the patient having learned somewhat of the poisonous nature of the medicine, refused to continue the use of it, upon which the sore again spread, and was painful; but, upon a return to the use of the Belladonna, it was again mended to a considerable degree: when the same fears again returning, the use of it was again laid aside, and with the same consequence of the sore becoming worse. Of these alternate states, connected with the alternate use of, and abstinence from, the Belladonna, there were several which fell under my own observation."

The sensible effects produced by the leaves of this plant, taken in medicinal doses, are usually by the skin, the urinary passages, and sometimes by stool; in larger doses, troublesome dryness of the mouth and throat, giddiness, and dimness of sight are experienced. That the advantages derived from the internal use of Belladonna are only in proportion to the evacuations effected by it, is a conclusion we cannot admit, as sufficiently warranted by the facts adduced upon this point.

As this plant has always been considered rather uncertain in its operations, it is with difficulty that we can direct what would be a proper dose: the most prudent manner, however, of administering it, is by beginning with one grain or less, and gradually increasing, according to its effects. Five and six grains are considered a very large dose.



Monkey Flower.

NAT. ORDER,

Scrophularineæ.

MIMULUS AURANTIACUS. MÒNKEY FLOWER

Class XIV. Didynamia. *Order II.* Angiospermia.

Gen. Char. *Calyx,* prismatic, five-toothed. *Corolla,* ringent, upper lip reflexed at the sides. *Pelate* of the lower lip, prominent. *Stigma,* thick, bifid.

Spe. Char. *Stem,* erect, smooth. *Leaves,* sessile, lanceolate, acuminate. *Peduncles,* axillary, shorter than the flowers.

The present species of *Mimulus* is equal in point of beauty to most of the inhabitants of our green-houses, to which situation it is most admirably adapted. The *stalk* rises about three feet high, much branched, shrubby, round, the young wood green, with a tinge of purple towards the lower part of each joint, slightly viscid, as it becomes older changing to a light brown color, and discovering several fissures; the *branches* are alternately opposite, and bearing flowers quite to the base; the *leaves* are opposite, sessile, slightly connate, ovate-lanceolate, somewhat blunt at the extremity; this bluntness is particularly apparent when compared with a leaf of the *Mimulus ringens:* toothed, or slightly sawed on the edge, smooth and veiny; the *flowers* are inodorous, large, nearly twice the size of those of the *ringens,* and uniformly of a pale scarlet color, growing in pairs, from the axil of the leaves, standing on footstalks about half the length of the calyx; the *calyx* is five-angled and five-toothed; the *tube* of the flower, within the calyx, is narrow, cylindrical, of a beautiful pink color, bent a little downward, gradually expanding, and dividing into

two lips, the upper of which is divided into two, and the lower into three segments, all of them irregular, the two uppermost very much so; at the base of the middle segment of the lower lip, are two prominent ridges, of a somewhat deeper color; the *stamens* are four, two long, and two short; the *anthers* are of a deep orange cruciform, within the flower; the *stigma* is white, and two-lipped; lips closed or expanded, according to its age; the *style* is filiform; the *germen* oblong, at the base of which is a gland of considerable size, which secretes small quantities of honey.

This plant is a native of the warmer parts of both North and South America, and is found in blossom during most of the summer months. It is easily increased by cuttings and layers, and would, no doubt, if properly managed, prove a valuable acquisition to the flower-garden.

Medical Properties and Uses. This plant partakes of the properties of those generally contained in this order. The leaves and roots act both as purgatives and emetics, in many respects resembling Digitalis: in fact, those properties are so prominent, that its use as a medicine is considered highly dangerous. The powdered leaves, or an extract of them, will produce vomiting, dejection and vertigo, and, if continued even in small doses, will increase the secretion of the saliva and urine, reduce the pulse, and even cause death. According to the account given of this plant, by Vauquelin, the purgative qualities depend upon the presence of a peculiar substance, analagous to resin, but differing, as it is soluble in hot water. It is recorded that the Indians of Spanish America procure an infusion of the roots and tops, and administer it for the cure of fever and ague, which, however, they recommend to be given in extremely small doses. Cattle, horses, sheep, and other animals, feeding upon the prairies where this plant is abundant, have fallen victims to its narcotic and stupifying influence. There is, however, another species of this plant—the *Mimulus guttatus*, the leaves of which are eaten as salad, by the natives on the coast

of Malabar; but this plant, like its congeners, is now suspected of possessing deleterious properties. The dose, and method of administration, we will not attempt to recommend, not being sufficiently acquainted with its uses, and, more especially, on account of not knowing for what purpose it can be administered to any advantage.

An extract was formerly prepared from this plant, by obtaining the expressed juice from the fresh green leaves, and afterwards subjected to the evaporation of the sun, until it was reduced to a consistency suitable for rolling into pills. From one to two five-grain pills were recommended at a dose, and repeated from once to three times a day. These pills became quite celebrated at one time, for the cure of various obstinate diseases; but were only resorted to where other more harmless medicines proved ineffectual. Obstinate fevers, agues, coughs, asthma, rheumatism, gout, and dysenteria, were the principal disorders said to be benefited by it: but it soon lost its popularity, and fell into disrepute; and is now entirely discarded from the practice of medicine.

Propagation and Culture. The Spanish formerly cultivated several species of the *Mimulus*, not as an ornament, but more particularly for its medical qualities. Their plan was—first, to plant the cuttings ten or twelve inches from each other, in furrows, or rows, laid out about three and a half feet apart: the soil should be of a gravelly or sandy character, and well manured; the weeds &c. kept down with a hoe, and the earth loosened a few times after they have taken root.

NAT. ORDER.

Irideæ.

IRIS PUMILA. DWARF IRIS.

Class III. Triandria. *Order I.* Monogynia.

Gen. Char. *Corolla*, six-parted, incomplete. *Segments*, three, reflexed, the others erect or connivent. *Style*, short. *Stigmas*, three, petaloid, covering the stamens. *Capsules*, three-celled, many-seeded.

Spe. Char. *Flowers*, beardless. *Stem*, terete, more or less flexuous. *Germen*, somewhat triangular. *Leaves*, ensiform.

This *genus* is distinguished by having a six-parted flower, every other division of which is reflected, or rolled backward; the *root* is somewhat bulbous, fleshy, of a dark purple or chestnut color, and from which proceed several succulent fibrous branches; the *stem* rises from two and a half to four feet in height, and terminates with a single flower; the *leaves* are sword-shaped, radicle, inserted in each other, pointed, somewhat shorter than the stem, and of a dark, dull green color; the *flowers* are large, upright, of a beautiful purple-scarlet color, and lower petals striped with a bluish tinge; the *calyx* is a spathe of two valves; the *corolla* divides into six segments, or petals, three of which stand erect; the other three, which are of an irregular oval shape, turn back and downward; the *filaments* are three, and crowned with long yellow anthers; the *style* is short and simple; the *stigma* separates into three expanded segments, resembling petals, which arch over the stamens; the *germen* is rather long, of an obtusely triangular shape, and placed below the corolla; the *capsule* has three cavities, and contains a large number of flat brown seeds.



2. Syrian Rose. 1 Dwarf Iris.

This name signifies *rainbow*, and is so called on account of its variety of colors, and is the same which was known and described by Pliny, nearly two thousand years ago. It is known in England, and in this country, as one of the varieties of the *Flower-de-luce*. The genus presents, according to the best accounts, about seventy species, some of which are found in almost every part of the globe. They greatly differ, both in size and appearance, some being from three to six feet high, while others are only as many inches. They are mostly perennial herbaceous plants, some of which have bulbous roots.

Propagation and Culture. The *Iris pumila* grows wild in many parts of Hungary: it seeks open and hilly situations, and flowers in the month of April: it is a hardy plant, and will thrive in almost any soil or situation. It is propagated by parting its roots in autumn, or by seeds. Gardeners, in former days, not having that profusion of plants to cultivate and ornament their gardens which we can at present boast, appear to have been more zealous to increase generally the varieties of the several species, which they were then in possession of: accordingly, we find in the *Paradisus terrestris* of the venerable Parkinson, no less than seven varieties of the *Flower-de-luce*, viz.: the lesser purple dwarf *Flower-de-luce*, with white blossoms; do. one with straw-colored blossoms; do. one with pale blue blossoms; do. one with blush-colored blossoms; do. one with yellow variable blossoms; and the purple dwarf *Sea Flower-de-luce* of the same author, is probably no other than a variety.

Medical Properties and Uses. This plant, and nearly all its varieties, are more valuable as an ornament to the flower-garden, than a medicine. It was used at one time by the ancients, and recommended for the cure of chronic diarrhœa, dysentery colic, and pains in the bowels: its use, however, at this time, is discarded from practice in medicine. This root, with many other of its species, enter largely into the composition of various tooth powders.

NAT. ORDER.

Malvaceæ.

HIBISCUS ROSEA. SYRIAN ROSE.

Class XVI. Monadelphia. *Order VII.* Polyandria.

Gen. Char. *Calyx*, double: outer many leaved. *Capsules*, five-celled, with many seeds.

Spe. Char. *Leaves*, sub-peltate, cordate, seven-angled, serrate. *Stem*, hispid.

The *root* of this beautiful plant is perennial, fleshy, long, whitish, and furnished with a large number of wire-like fibres: the *stem* is erect, round, hairy, strong, branched, and rises from two to three feet in height; the *leaves* are numerous, oval, divided into five or seven lobes, unequally serrated or notched at the edges, and stand upon long, round, hairy footstalks; the *flowers* are large and of a beautiful changeable scarlet color, consisting of five petals, which are inversely heart-shaped, sinuated at the apex, of a yellowish pink or scarlet color, painted with veins of a deeper hue, and stand upon slender peduncles, which proceed from the bottom of the leaf-stalks; the *calyx* is double; the outer composed of three, and the inner of five oval pointed hairy segments; the *stamens* are numerous, united at the base in a cylindrical form; above separate, bending downwards, and furnished with kidney-shaped anthers; the *germen* is roundish; the *style* is cylindrical, short, and furnished with many filiform stigmas; the *seeds* are numerous, of a kidney shape, and covered with a coat, or arillus, which opens inwardly. This plant grows wild in hedges and waste grounds, and flowers from June till September.

The *Hibiscus rosea* is a native of China, but is now quite common in the flower-gardens, both in this and the old countries, where it forms one of the chief ornaments to decorate the hedges in autumn. We view it, however, with less delight, as its splendid blossoms are a sure indication of approaching winter.

There are many varieties of this plant mentioned by authors, such as the *purple*, the *red-flowered*, the *white-flowered*, the *variegated red and white-flowered*, and the *striped-flowered*, to which may be added, another variety, lately introduced, with double flowers. It varies also in its foliage, which is sometimes marked with white, and sometimes with yellow.

Propagation and Culture. From the lateness of its flowering, and the want of sufficient warmth, this plant rarely ripens its seeds with us: the usual mode of increasing it is by layers, and sometimes by cuttings; but the best plants are raised from seeds. We would remark, that, in order to increase and multiply the scarce varieties, they may bo grafted on each other, which is the common method of propagating those valuable sorts with striped leaves.

Medical Properties and Uses. The leaves and flowers of this plant are the parts directed for medicinal purposes, although the roots were at one time considered preferable for some purposes; as sirups, poultices, &c., for which purpose the roots are washed clean, and boiled in a sufficient quantity of water to extract all of their strength; after which the liquor is strained off, and one pound of honey added to every quart of the liquor, and one sixth part of good gin: have this well mixed, when it is ready for use. This sirup was used principally for its diuretic qualities, but never gained much celebrity. The roots were boiled until they became quite soft; then mashed to pulp, and applied in this form as poultices. In this way it is said to have been the means of performing some astonishing cures.

NAT. ORDER.

Ranunculaceæ.

HELLEBORUS ORIENTALIS. BEAR'S-FOOT HELLEBORE.

Class XIII. Polyandria. *Order III.* Polygynia.

Gen. Char. *Calyx*, wanting. *Corolla*, six-petalled. *Stamens*, six. *Pistils*, three. *Capsules*, three, many-sided.

Spe. Char. *Raceme*, more than decomposed. *Corollas*, erect.

The *root* is small, but beset with an innumerable number of slender dark-colored fibres: the *stem* rises to the height of two or three feet; near the bottom it is round, strong, firm, naked, and marked with alternate cicatrices, the vestiges of the former leaves; at the top it divides and subdivides into branches, producing many flowers, and is garnished with scaly leaves or bracteæ; the *leaves* are numerous, and stand upon long footstalks, surrounding the middle of the stem; they are divided, like the *Helleborus niger*, into simple leaves, which are usually eight or nine in number, long, narrow, lanceolated, serrated, and of a dark green color; the *scaly leaves*, placed at the ramifications of the flower stem, are smooth, trifid, alternate, and often purplish; but those near the flowers are oval and pointed; the *flowers* are numerous, terminal, pendent, of a roundish shape, and stand upon peduncles, forming a sort of umbel; the *petals* are six, oval, concave, persistent, of a pale green pink color, and their margins sometimes tinged with purple; the *stamens* are about the length of the petals; the *anthers* are white; the *germens* three, hairy, and shaped similarly to those of the *Helleborus niger*. This plant is said to be a native of Eng-



Bear's-foot Hellebore.

land, where it was first discovered, but is found growing wild in the northern parts of the United States and the Canadas.

Medical Properties and Uses. The *Helleborus niger*, though constantly used in medicine since the time of Hippocrates, was the only species of Hellebore known in the Materia Medica of the pharmacopœias, till the late introduction of this plant by the London College, probably upon the authority of Dr. Bisset, who recommends the leaves as possessing extraordinary anthelminthic powers. The smell of the recent plant is extremely fœtid, and the taste is bitter and remarkably acrid, insomuch that when chewed it excoriates the mouth and fauces; it usually operates as a carthartic, but sometimes as an emetic, and, in large doses, proves highly deleterious. The leaves are the only part noticed by the London College, which have been long domestically employed in that country, mostly for their vermifuge effects; and are thus spoken of by Gerard: "The leaves of the Bear's-foot Hellebore is by far the most powerful vermifuge for long round worms of any I have yet experienced. The anthelminthic virtue of this plant is well known to some of the lower classes of England, who generally give it to their children when they suspect them to have worms. The decoction of the green leaves, taken in quantities of about a drachm, or fifteen grains of the dried leaves taken in powder, is the usual dose administered to children from four to seven years of age: a full or sufficient dose generally proves more or less emetic, and operates as a cathartic. It is usually repeated on two, and sometimes three successive mornings. The second dose proves more serviceable than the first, and never fails to expel round worms by stool, should they be lodged in the alimentary tube."

I have had an opportunity of witnessing the effects of this medicine in two cases, where it was repeated three times, proving successful in both, by expelling worms. An eminent physician, late from Germany, informs me, that this is their great remedy for

worms. He says: "The juice of the green leaves of the Bear's-foot, made into a sirup with coarse sugar, is the most valuable vermifuge I have used against worms in the course of my practice. Before pressing out the juice, I moisten the bruised leaves, which are a little succulent, with some vinegar, which is a corrector of this medicine, and prevents it from inducing great sickness, or much vomiting. Of this sirup I give one teaspoonful at bed-time, and one or two in the morning, on two or three successive days, to children from two to six years of age, increasing or diminishing the dose a little, according to the strength of the patient." If this dose does not sufficiently open the bowels, some vegetable cathartic medicine may be used, in order to facilitate its operation.

This plant is also highly spoken of, as being useful in the treatment of asthmatic and hypochondriacal disorders: for these complaints it should be administered in the form of pills, prepared from the extract, of about five grains each: from one to two pills may be given at a dose. The infusion is prepared by adding one ounce of the dried leaves to one pint of diluted alcohol. After it has stood ten or twelve days, express and filter, when it is ready for use. Neither of the above preparations are generally kept by the druggists at the present time, as other remedies of equal value have been discovered, possessing no deleterious qualities, which, of course, would render them far more preferable for general use.



Sweet Pea. | Garden Hollyhoke.

NAT. ORDER.

Papaveraceæ.

ATHEÆ ROSEA. GARDEN HOLLYHOKE.

Class XVI. Monadelphia. *Order VIII.* Polyandria.

Gen. Char. *Calyx*, double; the exterior six or nine-cleft. *Capsules*, numerous and one-seeded.

Spe. Char. *Leaves*, simple and downy.

The *root* is perennial, long, woody, fibrous, of a white color, tough, and very deeply set in the ground; the *stem* is upright, round, downy, from three to five feet in height, and somewhat branched towards the top; the *leaves* are alternate, petiolate, heart-shaped, pointed, serrated, downy, and those towards the top of the stalk somewhat cornered; the *flowers* proceed from the axillæ of the leaves in thick pannicles, along the stem and branches in spikes, small leaves, flowers, and buds for flowers together; the *petals* are five in number, broad, round, and assume a variety of colors; the *calyx* is double, the exterior being divided into about nine segments, and the interior into five; the filaments are numerous, united at their bases, and supporting kidney-shaped anthers; the *germen* orbicular, bearing a cylindrical style, which supports many stigmas; the seeds are numerous and uniform.

The present figure is a representation of the *Atheæ rosea*, formerly known and called by the name of *Malva arborea*, by Salmond, and by others *Malva rosea.*

Atheæ hortensis, Double-flowered Holyhoke, in its roots, stalks, leaves, magnitude, manner and form of growing, and its seeds exactly resembles the former, the difference being the present one is double,

whereas the former is single flowered. The double variety very much resembles the Double Roses, it being set thick with leaves, so much so that no style or stamen is seen in the middle; the outward row of petals are much the largest, and the inner smaller and more thickly set together; the colors of which are manifold and various.

Athaæ arborea, Outlandish Tree Holyhoke, has a large, long, woody, somewhat fibrous root; the stalk generally perishes every year, but in some climates survives two winters, and then decays. This variety grows more tree-like than an herb, having its stalk or body woody, and often from six to ten inches in circumference; the leaves are double the size of the common kind, soft and wooly, but not so white and downy, and sometimes ruffled at the edges; it seldom flowers the first year, and on the second the stalk spreads itself into several branches. This plant is a native of France, and seldom comes to maturity in this country.

Atheæ rosea arborea marina nostras, English Tree Sea Hollyhoke. This variety has a large white, woody root, beset with numerous small, stringy fibres; its stem, leaves, and manner of growing, very much resembles the one last described. The stalk is about the size of a man's arm, of a grayish ash color; the leaves are whitish and wooly, almost as large as the former, and as soft and smooth as velvet; the flowers are of a whitish, or diluted purple color, in form like the last, but not as large.

The first two grow only in gardens, and are to be found in almost all parts of the civilized world: it is said to be a native of Africa, where it is found in great profusion, especially along the coasts and borders of rivers. The last two are natives of Europe, inhabiting the sea-coast.

Propagation and Culture. The garden Hollyhoke is cultivated in nearly every part of the United States, in borders and waste places about the gardens. As an ornament, few plants excel it in beauty. It thrives best in a moist, loamy soil, and is cultivated with very little care, only requiring the ground softened at the time of

planting its seeds, and once or twice weeding. The seeds should be planted early in the spring, about one foot from each other, and in rows from three to four feet apart: in this manner the largest number of petals or flowers can be obtained, which are the only parts valued for medicinal purposes, and usually command a high price at the shops. The cultivation of this plant would richly repay for its labor. It produces its flowers in July and August, in great profusion.

Medical Properties and Uses. The flowers of the *Atheœ rosea* possess astringent and expectorant properties. A tea made, and drank freely, has been found highly useful in the treatment of leucorrhœa and other female weaknesses; but the most important purpose for which the flowers are in demand at the present time, is in the preparation of an article called the *Conserve of Hollyhoke,* or, by some, the *Bread of Life.* This conserve is prepared by taking one ounce of the petals of Atheæ rosea, three ounces of *Ulmus fulva,* one-fourth of an ounce of *Capsicum,* and one pound of white Havana sugar, all finely pulverized and well mixed together; after which add sufficient alcohol to make it into the consistency of a fresh loaf of bread, and lay it away to dry, when it will be ready for use. This conserve, eaten several times a day, in quantities from ten to twenty grains each, I have found to be invaluable in bronchitis, sore or ulcerated throat, foul stomach, colds, coughs, and in restoring the tone of the digestive organs to a proper action; and would therefore recommend it as being worthy of the consideration of the profession.

NAT. ORDER.

Leguminosæ.

LATHYRUS PURPUREO. SWEET PEA.

Class XVII. Diadelphia. *Order IV.* Decandria.

Gen. Char. *Stem*, angular. *Leaves*, longly-petiolate, one pair. *Leaflets*, lanceolate, somewhat pubescent, mucronate. *Tendril*, solitary. *Stipules*, minute. *Flowers*, from six to eight, racemose, longer than the leaves, purplish blue.

Spe. Char. *Style*, flat, vellous on the upper side, dilated upwards. *Calyx*, with two upper segments shortest.

This is a perennial plant; the *stalk*, or *stem*, rises from four to eight feet in height; it is slender, branched, twining, and clings to other plants or shrubs near it; the *petals* are five, of a bluish purple color, and stand upon short footstalks, closely embracing the stem; and in flowering time give a very beautiful appearance.

This species of *Pea* is said to be a native of Germany, where it was formerly employed as food, but produced such terrible effects upon the consumers, that its use was forbidden by an edict from the government. It was admitted that the flower from this tribe, mixed with one-half of wheat, makes fine and delicious bread, which at first appears harmless, but after a time it brings on a surprising rigidity of the limbs, loss of action, stupidity; and the persons become cripples for the remainder of their lives. Swine fattened with this meal, lose the use of their legs entirely, but continue to grow fat, lying on the ground. Fabroni says that swine lose the use of their limbs, and become pitiable monsters, by eating this flower.

Propagation and Culture. The *Pea* has been cultivated in this country from the time of its first settlement: it was first introduced here by the early settlers from England. Fuller informs us that Peas were first introduced into England from Holland, and were only considered fit dainties for the "lords and noblemen, as they came so far, and cost so dear." The use of the Pea in cookery, is familiar to every one. In one variety, called the *Sugar Pea*, the inner tough film of the pods is wanting, and such pods, when young, are frequently boiled with the seeds or peas within them, and eaten in the manner of kidney beans. This variety is comparatively new, having been introduced about the middle of the seventeenth century.

The Pea is the most esteemed legume in field cultivation, both for its seed and haulm, and was cultivated by the Greeks and Romans, in the earliest ages of history, though its culture appears to have diminished since the more general introduction of herbage plants and roots; and excepting large towns for gathering green, and in some places for boiling, the *Pea* has given way to the bean, or to a mixture of *Peas* and beans. There are various inducements, however, to the cultivation of *Peas* in dry warm soils, near large towns. When the crop is good, and gathered green, few pay better. The ground, after the Peas have been removed, is readily prepared for turnips, which also pay well as a retail crop, near towns; and the haulm is good fodder.

The soil best suited for Peas, is a dry, calcareous salt; it should be in good tilth, not too rich, but light and pliable. In some parts of the country, Peas are often sown after clover-leys, after one furrow, or after corn crops on two furrows, one given in autumn, and the other early in spring.

The climate required by the *Pea* is dry and not very warm, for which reason, as the seasons in this country are so very changeable, and oftentimes exceedingly dry and hot in June and July, the *Pea* is one of the most uncertain of field crops.

NAT. ORDER.

Magnoliaceæ.

LIRIODENDRON TULIPIFERA. COMMON TULIP-TREE.

Class XIII. Polyandria. *Order III.* Polygynia.

Gen. Char. *Flowers*, sometimes aggregated in a four-leaved involucrum. *Calyx*, four-toothed. *Petals*, four. *Drupe*, with a two-celled nut.

Spe. Char.—Arborescent. *Leaves*, ovate, acuminate. *Involucrum*, large, with abcordate leaflets.

This magnificent *tree* rises from eighty to one hundred and forty feet in height; the *trunk* is smooth, straight, branched towards the top, and covered with a rough, thick, coarse, ash-colored bark; the *flowers* are produced at the ends of the branches, and resemble the tulip, more than the lily or any other flower; the *petals* are from six to twenty-seven in number; the outer ones oblong, and the inner ones lanceolate; the *leaves* are on petioles, large, glossy, and panduriform, or guitar-shaped.

This is one of the largest and most beautiful of American forest trees. The trunk is large, and much valued for lumbering purposes, rising to a great height, without branches, and putting forth, about the middle of May, an abundance of superb flowers, marked with green, yellow and red streaks, which, together with its beautiful foliage, give to the tree a very magnificent appearance. The bark, which is employed in medicine, is of a strongly bitter, and slightly aromatic taste. According to the analysis of Dr. Rogers, it contains gum, resin, muriatic acid, iron, calcareous salt, gum mucus, and fecula. This bark has been long employed, both in domestic and



Common Tulip-tree.

regular practice in the United States, and it appears, from the testimony which has been published in favor of it, to be well entitled to the attention of the profession. The name originated from the Greek, *leirion*, a lily, and *dendron*, a tree. It has been transported to Europe, where it is now common, but does not attain the height of more than fifty or sixty feet.

Medical Properties and Uses. This bark possesses considerable stimulant properties, but it is chiefly on account of its tonic effects that it deserves notice. It acts also occasionally as a diuretic, and in general it produces conspicuous diaphoretic effects when largely administered. The bark of the root is less stimulant, and more purely tonic, than that of the trunk or smaller branches. Given in union with dogwood, and the *Prinus verticillatus*, it has been employed with much success in the cure of intermittents. Dr. Rush employed it, as he states, "with as much satisfaction as any of the common bitters of the shops."

Dr. J. T. Young, in a letter to Governor Clayton, of Delaware, says: "I have prescribed the poplar bark in a variety of cases of intermittent fever; and can declare, from experience, that it is equally efficacious with the Peruvian bark, if properly administered." As this is, however, considerably stimulant, it should never be given where the intermission is marked by symptoms denoting a phlogistic tendency in the system. Bleeding and purging were formerly considered necessary preliminaries to the employment of this remedy, where the habit is inflammatory; but of late, experience has taught us that this practice proves more hurtful than beneficial to the patient.

It has also been much recommended in chronic rheumatism and in gout; and from its manifest tendency to produce diaphoresis, together with its tonic operation, there can be but little doubt of its occasional usefulness in affections of this kind. From these combined properties it also acts with great advantage in the advanced stage of dysentery. In this disease I have repeatedly employed it

in conjunction with the *Ulmus aspera*, in the form of decoction, and in general the effects were very satisfactory. Dr. J. T. Young, who I have already quoted, speaks in very high terms of this remedy in the cure of hysteria. "I can assert from experience," says he, "that there is not, in all the Materia Medica, a more certain, speedy, and effectual remedy in the hysteria, than the poplar bark, combined with a small quantity of laudanum."

The bark of this tree has of late gained considerable celebrity as a tonic, in restoring action to the digestive organs; also as a valuable medicine given in connexion with the Hydrastus canadensis, in restoring weak and debilitated habits. The powdered bark also enters largely into the preparation called spice bitters, so universally used by the botanic practitioners, as a stimulating tonic. The composition powder so highly valued for the cure of colds, and as a diaphoretic, is composed of about one-eighth part of this bark. One ounce of the powdered bark, put in one quart of good wine, forms a valuable strengthening bitter for female weaknesses and general debility.

The poplar bark has been recommended and advantageously administered as an anthelmintic. Dr. J. Cost, speaking of this bark, says: "The inner bark of the Tulip-tree, or yellow poplar, *Liriodendron tulipifera*, is a very good bitter tonic, but is still more valuable as a prophylactic against worms." The bark may be given in substance, tincture, infusion, or decoction. In substance, however, it acts with most power. The dose of the powdered bark, for an adult, is from twenty to one hundred grains. If it produces purging and griping, a few drops of laudanum is sometimes added.



Common Dogwood.

NAT. ORDER.

Caprifoliaceæ.

CORNUS FLORIDA. COMMON DOGWOOD

Class IV. Tetrandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, four-toothed. *Petals*, four, small and broad *Stamens*, four, alternating with petals. *Style*, one. *Stigma*, one. *Fruit*, a drupe, inclosing a bilocular, two-seeded nut.

Spe. Char. *Leaves*, opposite, ovate, acuminate; base acute, glaucous beneath. *Involucres*, corolliform, nearly obcordate. *Drupes*, ovate and scarlet.

This *tree* rises from fifteen to thirty feet, with a rough, blackish bark, full of fissures; the *branches* are opposite, spreading, and are spotted with a reddish bark, where the old leaves have fallen off; the *leaves* are opposite, petiolate, oval, entire, base acute, end acuminate, and pale beneath, with strong parallel veins; the *flowers* are terminal, and appear when the leaves are quite young, with a large four-leaved involucre, about three inches broad, and which is often mistaken for the blossom; white, obcordate and veined; the *true flowers* are in the centre, small, crowded, sessile and yellowish; the *calyx* is campanulate, with four obtuse teeth; the *corolla* has four obtuse, oblong petals; the *stamens*, which are four in number, are erect; the *anthers* oblong; the *style* is short and erect; the *stigma* is obtuse; the *fruit* is several, oval, scarlet drupes, with a nut inside, having two cells and two seeds.

"The genus *Cornus*, or *Cornel*, must be divided into two sections: those species having the flowers capitate, sessile, and with an involucre, are the true Dogwoods (*Cynoxylon*), and those with cy-

mose, naked flowers, are true Cornels. It belongs, with *Hedera*, to the natural family of *Hederaces*. *Cornus* is the ancient Latin name of the Cornels; and *florida* implies that the blossoms are more conspicuous than in any other species."

Rafinesque, in his history of the *Cornus florida*, describes it as being a very handsome tree, "enlivening the woods in the spring by a profusion of large white blossoms, and bearing in the fall clusters of beautiful scarlet berries. In Louisiana, where it is called *Bois bouton*, or *Bois de fleche* (Budwood and Arrowwood), it blossoms in February; in the middle states in April and May; and more northwardly in June. It generally remains for two weeks in full bloom, and everywhere indicates, according to the Indians, when Indian corn is to be planted. The tree grows very slow, and the wood is hard, compact, heavy and durable; it is white outside, and chocolate color in the centre, taking a very fine polish, and may be used like boxwood, which it greatly resembles, especially when stained of a light yellow color. A variety of kinds of tools and instruments are made of it, as being preferable to any other wood except boxwood itself. It grows all over the United States, and in almost every soil, from Massachusetts to Louisiana, and from Florida to Missouri, thriving best and most abundant in swampy and moist woods.

The bark of the root, stem and branches, is bitter, astringent, and slightly aromatic. By analysis it has been found to contain, in different proportion, the same substances as *Cinchona*, having more of gum, mucilage, extractive and gallic acid, and less of resin, quinine and tannin. The quinine of the *Cornus* has been called Cornine; it has all the properties of the genuine sulphate of quinine, but very little is afforded. The double distilled water of *Cornus* is lemon color; that of Cinchona is reddish. The extract is less bitter and more astringent than that of the best *Cinchona*, but preferable to the extract of the inferior kinds. This extract contains all the tonic properties; the resin alone is merely stimulant. The bark of the root is the strongest and best adapted for medicinal uses: it is also

more soluble in water than the *Cinchona*. Sometimes the fresh bark disagrees with the stomach, producing a burning heat, nausea, &c.; but it is improved by keeping at least one year.

Medical Properties and Uses. The *Cornus florida* is tonic, astringent, antiseptic, coroborant, and stimulant. It is one of the best native substitutes for *Cinchona*, although evidently differing in some respects. The powdered bark quickens the pulse, and sometimes produces pains in the bowels; but the sulphate of cornine and the extract are not so stimulant. They are highly recommended and used in intermittent and remittent fevers; also typhus and all febrile disorders. In cases of debility it acts as a corroborant, and may be joined in practice with many of the bitter tonics. The flowers have the properties, and are greatly used by the Indians, in warm infusion, for fevers and colics. All the various preparations of the bark and the flowers have a more agreeable bitterness than the Peruvian bark.

Dr. James Osgood informs me that he has been in the habit of using the *Cornus florida* in connection with the Aletris farinosa, and *Trillium latrifolium*, for female weaknesses, leucorrhœa, general debility, &c. For the treatment of these complaints he found it particularly servicable. I have myself employed it in many instances, as an astringent and tonic; also in connection with other remedies, for weakness of the digestive organs; and I know of no bitter which is more grateful and effectual in cases of this kind than this one.

In the cure of intermittents this bark has been in great use in many parts of the country; and from the concurrent testimony of those who have employed it, as well as from my own experience, I am persuaded that of all our indigenous tonics, this bark is the most useful in the present disease. The late Professor Barton observes: "I believe we may with entire safety assert, that as yet we have not discovered, within the limits of the United States, any vegetables which have been found so effectually to answer the purpose of the Peruvian bark, in the management of intermittent fevers,

as the *Cornus florida*. It is usually given in the form of strong infusion. Of this from half to a whole wineglassful may be taken three or four times a day. The dose of the powder is from twenty to thirty grains.

Almost all the species of this genus have more or less the same tonic properties, and may be substituted for the *Cornus florida*. Three of the best known, as most efficient, will be here mentioned.

Cornas sericea, or Blueberry Cornel, vulgarly called Swamp Dogwood, or Rose Willow, is a shrub, from six to twelve feet high, growing from Canada to Virginia, near swamps and streams. The leaves are like those of the *Cornus florida*, and silky beneath; but the flowers are very different, being in large terminal cymes, without involucrum; yellowish white, and succeeded by large clusters of small, round, blue berries. The bark is less bitter, more astringent, and pleasant to the taste than the *Cornus florida*.

Cornus circinnata, or Round-leaved Cornel, often called Alder Dogwood, is a shrub with warty twigs, large rounded leaves, and wooly beneath. The flowers are in cymes, without involucrum. It grows from Canada to Pennsylvania. Prof. E. Ives, of New Haven, and Dr. A. Ives of New-York, have highly extolled this variety:—they say it resembles the pale Peruvian bark, *Cinchona lancifolia*: an ounce of the bark yields by boiling 150 grains of an astringent and intensely bitter extract. In many uses it has been found preferable to Colombo and *Cinchona cordifolia*. It is much employed in the northern states, in substance and otherwise, for diarrhœa, dyspepsia, &c., but is considered too heating in fevers.

Cornus alba, or Wax-berry Cornel, is also a shrub, growing from New England to Siberia in Asia, with broad ovate leaves, white beneath, flowers in cymes, berries round, and white like wax. The *Cornus canadensis* is a small herbaceous plant, with a stem from six to eight inches in length, and leaves very much veined. It inhabits mountains, meadows and swamps; and flowers in May and June.



Common Cowhage.

NAT. ORDER.

Papilionace.

DOLICHOS PRURIENS. COMMON COWHAGE.

Class XVII. Diadelphia. *Order IV.* Decandria.

Gen. Char. *Banner*, at the base of the standard, compressing the wings underneath; oblong and two-parallel.

Spe. Char. *Stem*, flexuous. *Racemes*, axillary. *Glumes*, erect, pendulous, hispid, containing seeds.

The *root* is perennial and fibrous; the *stem* is herbaceous, climbing, cylindrical, hairy, divided into many branches, which twist round the neighboring trees, and rise to a considerable height; the *leaves* are ternate, and stand upon long footstalks, placed alternately at the distance of about a foot from each other; each *pinna*, or lobe, is entire, ovate, pointed, smooth on the upper side, on the under hirsute; the lateral lobes are oblique, and somewhat larger than that in the middle, which is of a rhomboidal shape; the *flowers* are large, of a purplish or violet color, and are mostly ternate, placed upon short peduncles, and form pendant spikes, which arise from the axils of the leaves, and are about a foot in length; the proper *footstalks* are short, and furnished with small stipules; the *calyx* is bell-shaped, gibbous at the base, lax downy, divided into two lips, of which the upper is semi-ovate; the under separates into three lance-shaped segments; the *corolla* is of the papilionaceous order, consisting of a *vexillum*, or standard, which is roundish, entire, concave, obtuse, and double the length of the calyx; there are two *alæ*, or wings, which are oblong, obtuse, concave, and twice the length of the vexillum; a *carina*, or keel, which is scythe-shaped, of the length of the

alæ, compressed, and at the apex furnished on each side with a short, concave spur; the *filaments* are ten, nine of which are united at the base, alternately longer and shorter; the former are four times the breadth of the others, and supplied with incumbent anthers, but the anthers of the latter are placed vertically; the *germen* is oblong, villous, and supports a slender style, about the length of the filaments, terminated by a small orbicular stigma; the *fruit* is an oblong pod, in the form of the letter *f*, four or five inches in length, covered with brown, bristly hairs, and containing four, five or six seeds, of a brownish color. The flowers appear in September and October.

The plant known by the name of Cow-itch, Couhage, and Cowhage, is referred by Bergius and Miller to the *Dolichos urens* of Linnæus; and this error is also to be found in Aiton's Hortus Kewensis. The pods of both *Dolichos urens* and *Dolichos pruriens*, are beset with setaceous hairs; but of the former these are shorter, and very thinly scattered over the pod, which is keel-shaped, much longer, and more than twice the breadth of that of the latter, and marked transversely with deep furrows. These circumstances show that the *Doliches urens* is widely different from the officinal Cowhage here figured, which is a native of both Indies, and appears to have been cultivated in England in the time of Ray, by Mr. Charles Hatton; and it is even at this time found growing in many of the gardens throughout England; but we cannot learn that it has ever been known to produce perfect flowers in our gardens, or even the greenhouses.

The sharp hairs of the pod readily penetrate the skin, and cause a very troublesome itching—a mischievous purpose, to which in this country they have been long chiefly converted. But the violent irritation which these produce upon the external skin, has not deterred practitioners from administering them internally, especially in the West Indies, where they have been generally employed for many years as a safe and efficacious anthelmintic; and, with a view to this

effect, they are now admitted into general practice, both in Europe and the United States.

Sir Hans Sloane, who has noticed the diuretic qualities of the roots and pods of this plant, observes, that an infusion of the latter "is a certain remedy for the dropsy;" but he takes no notice of the vermifuge effects of Cowhage: Brown has, however, informed us, that "in the windward islands some of the inhabitants make a sirup of the pods, which is said to be very effectual against worms." But as little attention would be paid to an observation so vague and unsatisfactory as this, we are to consider Mr. Bancroft as the first person whose writings tended to establish the anthelmintic character of Cowhage in Europe, from whence its use was introduced into this country. He tells us "the part used is the setaceous hairy substance growing on the outside of the pod, which is scraped off, and mixed with common sirup or molasses, of which a teaspoonful to a child of two or three years old, and double the quantity to an adult, is given in the morning before breakfast, and repeated the two succeeding mornings; after which a dose of rhubarb is usually subjoined. This is the empyrical practice of the planters, who usually once in three or four months exhibit the Cow-itch in this manner to their slaves in general, but especially to all their children, without distinction; and in this manner I have seen it given to hundreds, from one year old and upwards, with the most happy success. The patients, after the second dose, usually discharged an incredible number of worms, even to the amount of more than twenty at a time." He concludes by saying, "It is to be observed, that this remedy is particularly designed to expel the long round worm; whether it is equally deleterious to the ascarides, or whether it has ever been used against them, I am uncertain." Other accounts, showing the efficacy of this medicine, have since appeared in various medical publications, both in this country and Europe, all speaking highly in its favor; and more particularly a treatise professedly written on the subject, by Mr. Chamberlain, to which a number of cases are

subjoined, and to which great additions have lately been made, on various and indubitable authorities, proving the Cowhage to be not less successful here than in the warmer climates of which it is a native; and that all the different kinds of worms known to infest the primæ viæ, have been expelled by this anthelmintic.

The manner in which these hairy spiculæ act as a vermifuge, seems to be purely mechanical; for neither the tincture nor the decoction possess the least anthelmintic power.

The following experiment, made by Mr. Chamberlaine, fully illustrates this opinion: "A calabash full of very large worms of the *teres* kind, in full vigor, voided by a poor emaciated patient, was brought to me. Among these I sprinkled some of the setæ. For a minute or two no visible effect was produced; but in a little time they began to writhe and twist themselves in an unusual manner, and exhibited evident signs of extreme torture. I took one of the worms, and, viewing it through a magnifying glass, perceived that several of the setæ had pierced very deep, and others were sticking loosely in various parts of its body, but that none of the spiulæ which had once entered into the skin, dropped off."

Propagation and Culture. There are fifty-seven different varieties of this plant now known and described by botanists; but none of the species are worth cultivating for ornaments, except the *Dolichos lignosus*, *Dolichos Jacqaini*, and *Dolichos Curtisii*. A light rich soil answers for all the species, and they are easily increased, either by seed or cuttings: cuttings planted in a pot of sand, root freely; but those of the stove kind require heat. As this plant has never attracted the attention of the gardener as an ornament, neither much sought for as a medicine, consequently its culture is very limited both here and in Europe.



1. Cypripedium Humile. 2. Calochortus luteus.

NAT. ORDER.

Orchideæ.

CYPRIPEDIUM HUMILE. LADIES' SLIPPER.

Class XX. Gynandria. *Order II.* Diandria.

Gen. Char. *Lip*, vertricose, inflated, saccate. *Petals*, four, the under one bifid. *Column*, terminating in a petaloid lobe.

Spe. Char. *Stem*, leafy. *Lobe* of the style, triangular-oblong, obtuse. Exterior *Petals*, ovate-oblong, acuminate; interior very long, linear, contorted. *Lip*, shorter than the petals, compressed.

The *roots* are perennial, with many long, thick, fleshy, cylindrical and flexuose fibres, of a pale yellowish cast, diverging horizontally from the candex; the *stems* are from one to five, springing from the same candex, simple, erect, often pubescent and angular, rising from twelve to eighteen inches high; *style* and *stamens* concrete in the centre, above the germen, forming a central pillar, flattened above into an oblong deltoid lobe, supposed to be the stigma by some botanists, and bearing before two anthers, lodged in separate cells; the *fruit* is an oblong capsule, with one cell, three valves, and a multitude of minute seeds, as in all the Orchideous tribe.

Dr. Bigelow describes the present species as being different from the rest, in respect to its having no stem leaves. "The *leaves* are two, springing from the root, large, oval, lanceolate, plaited, downy; the *flowers* are generally single, terminal and nodding: the *petals* are four, spreading, the two lateral ones narrower, and somewhat twisted; the *nectary* is a large flesh-colored, inflated bag, veined, villous, and longer than the petals; the *style*, over the base of the

nectary, supports two lateral anthers on the inside, and ends in a broad, roundish, deflected, acute lobe, carinated on the inside."

Genus Cypripedium, Ladies' Slipper, takes its name from *kupris*, Venus, and *podion*, a slipper, in allusion to the slipper-like form of the labellum, or principal segment of the flower, which is commonly called the nectary. The common species, *Cypripedium calceolus*, is a well-known garden plant. There are also several wild species growing in our woods; and of these the *Cypripedium humile* is among the most beautiful and valuable. It grows in the distant woods, seldom being found near the habitations of man, from New England to Louisiana, but very rare in some places, while it is common in the hills and swamps of New-York, the Highlands, Green and Catskill Mountains, and also in the glades and prairies of the Western States.

This plant blossoms in May and June, and is much valued in gardens for its beauty and singularity; but it is difficult to cultivate. For medical use it must be collected in the fall, or early in the spring, carefully dried, and reduced to powder. Rafinesque, in speaking of this plant, says that he has ascertained that there is but one species affording many varieties, some of which are the *Cypripedium pubescens*, entirely pubescent—even the flowers; *Cypripedium glabrum*, nearly smooth; *Cypripedium grandiflorum*, slightly pubescent, labellum very large; *Cypripedium parviflorum*, slightly pubescent, labellum small; *Cypripedium maculatum*, labellum more or less spotted with red dots, lobule often red; *Cypripedium biflorum*, with two flowers and bracteas; *Cypripedium concolor*, the whole flower yellow or yellowish, unspotted; *Cypripedium augustifolium*, leaves and bracteas lanceolate. A multitude of intermediate varieties or deviations may be seen, with undulate or spiral sepals, obtuse or acute lobules, broader or narrower leaves, &c.

Propagation and Culture. This curious plant seldom grows from seeds; when transplanted, the roots must be taken up with the earth around them, and placed in a congenial rich light soil.

They should be freely watered for the first one or two weeks, after which (in a suitable season) they will require no more attention.

Medical Properties and Uses. The most authentic and reliable description of the properties of this plant, is that given by Rafinesque. He says: "It is with some satisfaction that I am enabled to introduce, for the first time, this beautiful genus into our Materia Medica: all the species are equally medical; they have long been known to the Indians, and used as a nervine. They are also sedative, anti-spasmodic, &c.; and the best American substitute for Valerian in almost all cases. They produce beneficial effects in all nervous diseases, and hysterical affections, by allaying pain, quieting the nerves and promoting sleep. They are also used in hemicrania, epilepsy, tremors, nervous fevers, &c. They are preferable to opium in many cases, having no baneful nor narcotic effects. The dose is a teaspoonful of the powder, diluted in sugar, water, or any other convenient form. As in valerian, the nervine power is increased by combination with mild tonics. The powder alone has been used; but an extract is preferable." The best method of preparing the extract, is from a spirituous evaporation of a strong tincture of the roots, which is done by submitting them to the influence of the sun. The active principle is very volatile.

It is well known that the roots of all the tubercular Orchideous afford the officinal Salep, which is so highly esteemed in Asia, as aphrodisiac, nutritive and pectoral. The roots of many species of Orchis could afford it in America.

NAT. ORDER:

Liliaceæ.

CALOCHORTUS LUTEUS. MEXICAN LILY.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, five-parted. *Petals*, five. *Stameus*, joined into a tube, which is ten-toothed at the apex; the alternate teeth bearing anthers. *Anthers*, one-celled. *Cells*, transverse.

Spe. Char. *Stigma*, of three joined ones, therefore triagonal, three-furrowed. *Ovarium*, villous. *Capsule*, three-celled, destitute of any central column. *Seeds*, mucronate at both ends.

This is a small herbaceous plant, with radical, cordate, stiff, crenated *leaves;* the *scapes* are naked, bearing a loose, spicate raceme of small white flowers at the apex; the *stem* is upright, straight, of a hard woody texture, and near the top sends off several branches; the *flowers*, which are of a deep beautiful yellow, are placed upon short footstalks, at the extremity of the branches; the *root* is a large bulb, from one to two inches in diameter, and very much resembles the common turnip. It is a native of Mexico, but is found growing in the temperate parts of North America, Europe, and Asia. It flowers from July till September.

Propagation and Culture. This plant is but little known in this country; consequently a lengthy description of the mode of its cultivation, or its history, would not be interesting at this time. Those who have propagated this plant, inform us that it thrives best in a peat soil, and, if planted out in a moist situation, will grow and flower freely. It is readily increased by dividing the roots.



1. Arbutus Uva ursi 2. Campanula grandiflora.

NAT. ORDER.

Ericeæ.

ARBUTUS UVA URSI. BEAR-BERRY.

Class X. Decandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, five-parted. *Corolla*, ovate, the mouth pelucid at the base. *Berry*, five-celled.

Spe. Char. *Stalks*, procumbent. *Leaves*, quite entire.

The *root* is perennial, long, branched and fibrous; the *stems* are numerous, procumbent, spreading, woody, scarcely a foot in length, and seldom divided into branches; the *leaves* are oblong, obtuse, narrowed towards the base, entire, thick or fleshy, smooth, without footstalks, of a dull green color, and closely surround the upper part of the stalk; the *flowers* are whitish or flesh-colored, and terminate the stems in small clusters, upon short pedicles; the *calyx* is very small and divided into five obtuse teeth; the *corolla* consists of a single petal, which is tubular, oval, contracted, and divided at the margin into five minute reflexed segments; the *filaments* are ten, short, downy, tapering, and crowned with erect reddish anthers; the *germen* is oval, and placed above the insertion of the corolla; the *style* is tapering, longer than the filaments, and terminated with a simple stigma; the *fruit* is a pulpy, round, red berry. It flowers in June and July.

The *Uva ursi* is an evergreen creeping plant, with small oblong, oval leaves, resembling very closely those of the common garden box. It is indigenous both to Europe and the United States. The leaves contain tannin, mucilage, gallic acid, extractive, resin and lime. Wherever this plant is found, it is in great abundance, both in this country and in Europe, and seeks a barren, sandy soil, and

that which is found in dry, lofty and exposed situations, is preferred for medical use to that which is collected in valleys and shady grounds. The leaves of this plant, in a dried state, have no remarkable smell, but a bitterish, astringent taste, and by some have been used for the purpose of dying an ash color, and for tanning leather. The sapid matter of these leaves has been attributed rather to the presence of gummy than of resinous particles, as water will more completely extract their virtues than spirit.

Medical Properties and Uses. The Uva ursi, though employed by the ancients in several diseases requiring astringent medicines, had almost fallen into disuse, till about the middle of the present century, when it first drew the attention of physicians as a useful remedy in calculous and nephritic affections; and, in the years 1763 and 1764, by the concurrent testimonies of different authors, it acquired remarkable celebrity, not only for its efficacy in gravelly complaints, but in almost every other disease to which the urinary organs are liable: such as ulcers of the kidneys and bladder, cystirrhœa, diabetes, &c., and its utility was then thought to be so fully established, that a celebrated Spanish writer made it his boast, that the man to whom these important discoveries of the effects of this plant ought first to be referred, was his countryman. He was, however, superseded in this claim by the physicians at Montpelier, who had been in the habit of prescribing Uva ursi in these diseases for many years before. But the cases published successively by De Haen tended more to raise the medical character of Uva ursi over Europe and this country, than all the other books professedly written on the virtues of this plant: and, encouraged by his success, many practitioners, especially in Europe, have been induced to try its effects; and though the use of this plant has been frequently observed to mitigate the pains in calculous cases, yet in no instance do we find that it has produced that essential or permanent relief which is said to have been experienced by the German physicians.

The virtues of this plant are variously represented by writers

on the Materia Medica. Alibert says: "All that can be said of this remedy, is, that its action is, under certain circumstances, manifestly diuretic;" and he declares that its supposed specific power in nephritic and other diseases of the urinary organs, has not the least foundation. From the experiments, also, of Dr. Alexander, the leaves of Uva ursi seem to possess very little diuretic power, and those made by Murray show that they have no material effect upon the urinary calculi; the efficacy they may therefore have in relieving the calculous diseases, we are disposed to ascribe to their astringency; and, in confirmation of this opinion, we may cite the observation of Dr. Cullen, who, in his chapter on astringents, notices the dissertation of De Heucher, under the title of *Calculus per adstringentia pellendus:* and though he does not think with this author that astringents are lithontriptics; yet from his own experience, and that of others, he believes they often have a powerful effect in relieving calculous symptoms; and in proof of this he refers to the exhibition of the Uva ursi.

The weight of testimony is, however, greatly in favor of its remediate powers in disorders of this kind. The account given by De Haen of its efficacy in diseases of the urinary organs, is, indeed, exceedingly flattering; and although few other practitioners may have been equally successful with it, there is, notwithstanding, sufficient evidence extant to warrant us in regarding it as a very important remedy in such diseases. De Haen relates some very remarkable instances of the successful use of the leaves of this plant in calculous and nephritic affections. He says he employed it with success in cases of ulceration of the perineum from calculus in the bladder, and in purulent discharges from the urinary passages. He insists, however, that this remedy is wholly ineffectual in cases where there is much derangement of the internal urinary organs, whether from calculi, puss, or too frequent and long retention of urine. He also states, that in several of urinary calculus, this remedy afforded complete relief, "although the catheter showed that

the calculus still remained." It does not appear from late experience, however, that any dependence is to be placed on this remedy in calculi of the bladder. In nephritic affections, from gravel, and other causes, we have abundant proof of its utility.

Dr. Ferrias, whose testimony deserves the highest respect, says, "I have given this medicine in a considerable number of nephritic cases, in very moderate doses, and always with manifest advantage." He further observes, that he never found it necessary to give it in larger doses than five grains, and that in doses of a scruple or half a drachm he found it to produce nausea, even when given with opium. The same circumstance is mentioned by Lewis. "In all cases," says he, "that have come to my knowledge, it produced great sickness and uneasiness."

In that variety of urinary disease which is accompanied with copious white sediment, especially in the last portions discharged, occasioning pain and irritation in the urethra, Dr. Prout states that "he has often seen the greatest advantage from the combined use of hyoscyamus and Uva ursi, together with the use of alterative purgatives." I have a patient under my care at this time, who has been for upwards of two years exceedingly afflicted with a pain in the region of the right kidney, attended with all the usual symptoms of renal calculus. He has been gradually getting better under the continued use of Uva ursi, taken in doses of about twelve grains, three times a day, and is at present almost entirely free from any symptom of his disease. Professor Barton thought it particularly serviceable in nephritis depending on gout. "In my own nephritic paroxysm," he observes, "alternating with attacks of gout in the feet, I have certainly found the medicine of much service; and I confidently and with much pleasure recommend it to the notice and trial of other sufferers from the same affection."

Of the modus operandi of Uva ursi in nephritic and calculous disorders, we are entirely uninformed; nor will we consume the reader's time by speculations upon a topic which has been so fruit-

lessly attempted by many of the ablest physicians. The remediate employment of Uva ursi has, however, not been confined to the urinary organs; it has been equally extolled in the cure of other maladies, particularly in diabetes, consumption, leucorrhœa, hæmaturia, and gonorrhœa.

In the treatment of diabetes, Dr. Ferrias was in the habit of giving it in conjunction with cinchona and lime-water. Dr. Bourne, professor of the practice of physic in the University of Oxford, speaks very highly of the efficacy of the Uva ursi in the cure of pulmonary consumption. He states that, out of sixteen cases treated with this remedy, nine were cured, four relieved, and three died. He gave medicine in ten grain doses, with half a grain of opium, three times a day.

It is useful in irritations of the bladder, ulcerations of the kidneys, &c.; but it is difficult to account for its *modus operandi* in these diseases. In dysentery and diarrhœa, the decoction may be administered as an adjuvant to other medicines: its chief employment, however, is confined to affections of the urinary organs; but future experience must determine its precise virtues in these diseases.

The leaves may be employed either in powder or decoction; the former is mostly preferred, and given in doses from a scruple to a drachm, two or three times a day.

NAT. ORDER.

Campanulaceæ.

CAMPANULA GRANDIFLORA. GREAT BELL-FLOWER.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, mostly five-cleft. *Corolla*, campanulate, five-cleft. *Filaments*, dilated at the base. *Stigma*, three to five-cleft. *Capsule*, three-celled, open by lateral pores.

Spe. Char.—Glabrous. *Leaves*, radical, reniform, cordate, crenate; cauline ones linear, entire. *Panicle*, lax, few-flowered.

This is a perennial *plant;* the *stalks* are upright, branched, and usually rise from two to four feet in height; the *calyx* is five-cleft, having the sinuses usually covered with appendages; the *corolla* is five-lobed, or five-cleft at the apex, and bell-shaped; the *stamens* are five, free; the *filaments* are broad at the base, and membranous; the *style* is covered by fascicles of hairs, except at the base; *stigmas* three to five, filiform; *ovarium* wholly inferior, three to five-cellhd; *capsule* three to five-valved, dehiscing laterally; *seeds* usually ovate flattened, sometimes ovoid and small; the radical *leaves* are different in form from the cauline ones, especially in size; the *flowers*, for the most part, are pedunculate, usually racemose, rarely spicate or glomerate, blue or white.

All the species of this plant are inhabitants of the northern hemisphere. The names *Trachelium* and *Cervicaria*, are the oldest names used for this genus, which were given to it on account of its supposed efficacy in the cure of disorders of the neck and trachea: hence it has the name of *Halskraut, or Halswort*, in German; *Halsurt* in Danish; and *Throatwort* in English; and some species have

received the name of *Rapunculus*, from the resemblance of the root to that of a turnip: hence they have the names *Rapum*, *Rapuntum*, *Rapunculus*, from whence spring the French name *Raiponce*, the German *Rapunzel*, the Spanish one of *Rapiunchiga*, and the English one of Rampion.

Prof. Jacquin is the first author who ever figured this species of *Campanula;* afterwards Linnæus, the son, described it, and assigned it the characters specified above; but expressing his doubts whether it was not a variety of the *Campanula carpatica*. Prof. Jacquin clearly demonstrates that it cannot be so, as it differs most essentially from that plant in a variety of particulars. His specific description given agrees much better with the plants we have seen flower here, than that of Linnæus; there being generally more than one flower on a stalk, and the leaves rarely growing three together. The blossoms of this plant, when it grows in perfection, are very large, nearly double the size of those of the *Campanula carpatica*, whence its name *grandiflora*. Previous to their opening fully, they somewhat resemble an air balloon, from which circumstance it has been called by some the Balloon-plant. This is as yet a rare plant in this country, and likely to continue so, as it is with difficulty that it is increased, multiplying but little by its roots, scarcely to be struck from cuttings, and rarely producing perfect seeds.

Propagation and Culture. All the species are elegant and handsome when in blossom, and are well adapted for decorating flower borders. They in general thrive well in common garden earth. The seeds of the biennial and annual kinds should be sown in the open border in the spring. The perennial species may either be propagated by division or by seed. By sowing the seeds in the autumn, the plants will blossom early in summer, and by successive sowings in spring, at intervals of two or three weeks, a succession of blossoming plants may be kept up. Some of the perennial and biennial species, natives of the warm latitudes, require a little protection in winter, when the weather is severe.

NAT. ORDER.

Geraniaceæ.

GERANIUM SANGUINEUM. VICTORIA PERFECTION.

Class XVI. Monadelpia. *Order V.* Decandria.

Gen. Char. *Calyx*, five-leaved, equal. *Stamens*, ten; five alternate ones longer, with nectariferous glands at the base. *Pericarps*, five, with long awns, united to elongated receptacles, at length separating elastically from the summit to the base. *Awns*, smooth internally.

Spe. Char. *Stem*, angular, erect, retrorsely pubescent, dichomous. *Leaves*, three to five-parted, incised; radicle ones on long petioles; upper ones opposite, sessile. *Petals*, entire. *Filaments*, scarcely ciliate at the base.

The *root* of this plant is fleshy, bulbous, knotty, of a dark brown color, and sends off a number of small succulent fibres; the *stems* of this genus of plants are upright, branched, and rise from one to six feet in height; the *calyx* is composed of five equal sepals; the *petals* are five, and equal; the *stamens* are ten, five of which are fertile and larger than the sterile ones, which are alternating with each other, with a nectariferous gland at the base of each of the larger stamens; the *awns* of the carpel are smooth on the inside, at length separating elastically from the base to the apex of the axis, where it adheres, circinnately revolute; the *leaves* are palmate-lobed; the *peduncles* are twelve-flowered, bearing beautiful flowers of various hues.

This variety of the Geranium approaches, both in appearance and properties, the *Geranium maculatum*, or Spotted Crane's-bill, which grows in almost all parts of the United States. The root is



Geranium Sanguineum.

the only part used in medicine; but the plant, as an ornament, is considered as one of the first in the flower garden.

Propagation and Culture. Few genera of plants exhibit more fully the industry of the cultivator, or demonstrate more clearly the control he exercises in producing varieties, than in the case of the Geranium or Pelargonium. Hundreds of varieties, which are to be met with in the collections of florists, are the fruits of his ingenuity; for, however strange it may appear, it is a positive fact that not above a dozen true species are to be recognized amongst them. It is, therefore, now only in the strictly botanical collections that true species are to be seen, they having given place to sub-species, originated by hybridizing. With the exception of three or four species, the whole of this splendid tribe, amounting to nearly three hundred recorded species, and above five hundred sub-varieties, have been either introduced or originated in this country and Europe within the last fifty or sixty years.

The tuberous rooted kinds, or those belonging to sections *Hoarea*, *Dimacrina*, and *Seymouria*, thrive best in an equal mixture of light turfy soil, peat and sand; and, when in a dormant state, require to be kept quite dry, which commences as soon as they have done flowering, and have ripened their seeds; after which time they require to be kept in a good situation, out of the reach of frost, but as soon as they begin to push afresh, all the old mould should be taken out of the pots, and from their roots; they should then be potted afresh, in new mould. In potting them, care must be taken not to bury the heart of the plants. After this they require a little water, and, as they grow, watered whenever they are dry; and if the pots get filled with roots, they must be shifted into larger ones. The best method of increasing them, is by the little tubers which issue from the old bulbs, planted singly, in small pots, with their tops above the surface, and kept dry until they begin to grow, when they should be watered.

The more common, free growing, shrubby kinds, will thrive well in a rich loamy soil, or a mixture of loam and decayed leaves. The dwarfer woody kinds, such as the *G. tricolor*, *elegans* and *ovale*, thrive best in a mixture of loam, peat and sand : the pots should be well drained with pot-sherds. The fleshy stemed sorts succeed best in rather more than one-third of fine sand, the same quantity of turfy loam, and the remainder of peat; the pots also require to be well drained with pot-sherds. Very little water is required when they are not in a vigorous state. Young cuttings of all the shrubby kinds strike root freely under hand-glasses, in the same kind of soil recommended for the plants, or in pots, without being covered by glasses, placed in a shady situation. Many of the kinds may be increased by slips from the roots.

No genus is more liable to sport into hybrids than this, by promiscuous impregnation. All the fine hybrid varieties in the garden have been obtained by impregnating one sort with the pollen of another, by cutting out the anthers of the plant intended for the female parent, before they burst, and impregnating the stigmas with the pollen of another. The object of this should be to obtain a superior variety : therefore particular attention should be paid to those plants intended for the parents, and more so to that intended for the female parent; for it has been observed that seedlings approach nearer to the male than the female parent. To grow Geraniums in rooms, they require as much air and light as can possibly be given them, and watered regularly when dry; and when the leaves get dusty, to clean them well with a sponge and water.

Medical Properties and Uses. This is one of the most powerful and pure vegetable astringents in the Materia Medica. According to the accounts of some late professors, in regard to their experiments, it contains a considerable proportion of tannin, and a small quantity of gallic acid. The gallic acid is indicated by the dark precipitate remaining in solution. It differs, however, from the acid of

oak galls, in not reddening vegetable blues, and not passing over in distillation. Its active principles are readily extracted, both by alcohol and proof spirits. The tincture is strongly astringent.

Prof. Bigelow, in speaking of the properties of this plant, says: "The root is the most agreeable astringent we possess. Its astringency is not associated with bitterness, or any other unpleasant taste. In the diseases of children, where astringents are indicated, a decoction of it in milk is a very convenient and efficacious remedy. In this form it has been extensively used in cholera infantum, and I have myself repeatedly prescribed it, in protracted cases, with great benefit." In the advanced stages of diarrhœa and dysentery, after proper evacuations have been made, it has proved very beneficial. For this purpose it should be administered in powder, combined with Bayberry bark, in proportion of five grains of the former to two of the latter. This often effects a cure when all other remedies fail. The watery infusion has often been recommended as an injection in gonorrhœa, but I have never learnt that its use was ever attended with much benefit. In apthous affections of the mouth, this remedy is frequently very useful. In chronic and very obstinate cases of ulceration of the mouth, patients have been perfectly relieved by the use of gargles made of this root, after a great variety of other substances had been tried unsuccessfully by myself and others. Dr. Mease recommends it as very efficacious in restraining internal hæmorrhages; and Dr. Thatcher says that he has known the infusion to restrain hæmorrhage from the lungs in a very prompt manner. It is currently reported that the western Indians consider the Geranium as the most effectual remedy they have ever used for dysentery.

From considerable experience with this medicine, as well as from the testimony of many other physicians, I am entirely satisfied that it is one of the most useful vegetable astringents we possess. The saturated tincture may be given in doses of from one to two drachms.

Rhexieæ.

RHEXIA GLUTINOSA. YELLOW-FLOWERED RHEXIA.

Class VIII. Octandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, lanceolate, four to five-cleft. *Petioles*, four inserted upon the calyx.

Spe. Char. *Stem*, with winged angles, somewhat hairy. *Leaves*, sessile, ovate-lanceolate, serrate-ciliate, sprinkled with appressed hairs on both sides.

The *stem* is erect, quadrangular, branched, and rises from one to three feet in height; the *leaves* are sessile, quite entire, linear-lanceolate, or ovate, and three nerved; the *flowers* are by threes, disposed in cymose corymb, and of a purple or yellow color; the tube of the *calyx* is ovate and ventricose at the base, but constricted at the neck, or near the apex; *limb* four-cleft and permanent; the *petals* are four in number, and obovate; *stamens* eight; *anthers* not drawn out at the base; *cadsules* free in the bottom of the calyx, four-celled, with lunate, pedicellate placentas; *seeds* cochleate.

This plant is a native of the warmer parts of Africa, and is found growing in some parts of South America, but is very little known in this country. Few specimens, however, have been inrroduced, and raised in our hot-houses, but will not thrive unless kept about the same warmth that Orange trees require. It flowers from July till September.

Propagation and Culture. All the species of this genus are very elegant and beautiful to the eye when in flower; and if planted in a bed of peat soil (which is the only soil in which they will thrive), they will grow and increase abundantly; and, if grown in



Rhexia glutinosa.

pots, which is sometimes the case, they must be planted in peat soil. They are all increased very rapidly by dividing the roots.

Medical Properties and Uses. A slight degree of astringency is the prevailing character of the order, which is, although one of the most extensively known, entirely destitute of any unwholesome species. The succulent fruit of many is eatable, some of which dye the mouth black, whence the name Melastoma. One of the varieties produces a fruit which is eatable, and very pleasant, and found in great abundance in the woods of Guinea.

In some parts of Guinea this plant is held in great esteem as a specific for diseases of the bowels, such as dysenteria, diarrhœa, colic, cholera-morbus, and in all cases where astringents are required. It is sometimes given in connection with other astringents, and stimulants combined in suitable proportion. We are informed by a correspondent, a gentleman of undoubted veracity, who says, "I have used the decoction of the bark of the root, for bowel and summer complaints, and seldom ever find it fail to effect the purposes for which it is given. In cases of dysenteria or looseness of the bowels, I consider it as one of the best remedies known." The decoction is prepared by adding two ounces of the dried bark taken from the root, to one quart of water: steep this down to one pint and-a-half: then add sufficient good brandy to preserve it from souring. The dose of this is from half to a full wine-glassful, according to the urgency of the case: repeat several times a day. An extract is sometimes prepared, but in its preparation it is very much injured by too long being exposed to heat; it being somewhat volatile.

NAT. ORDER.

Aroideæ.

SYMPLOCARPUS AUGUSTISPATHA. NARROW-SPATHED SKUNK-CABBAGE.

Class III. Triandria. *Order I.* Monogynia.

Gen. Char.—Stemless and Sub-aquatic. *Calyx*, four-parted. *Segments*, cucullate. *Leaves*, ovate, cordate. *Spadix*, oval, shorter than the spatha. *Stamens*, four. *Filaments*, subulate. *Anthers*, oblong, with parallel cells. *Spadix*, pedunculate. *Flowers*, tesselately imbricate. *Petals*, none. *Style*, four-angled, pyramidal. *Stigma*, minute. *Seed*, globular, pilumule, near the base.

Spe. Char. Root, thick, descending, and abruptly terminating in numerous fibres. *Spadix*, an inch long, on a short, thick peduncle; ovoid, globose. *Leaves*, with four-leaved perianth. *Spathe*, cucullate, shell-form. *Seed*, with a large fleshy globular embryo, consisting chiefly of radical, with one or sometimes several plumules; numerous.

The above plant, a native of North America, retains so close a resemblance to the *S. fœtida*, as hardly to allow of any other appellation than that of a variety, as distinguished from a distinct species. It is, however, opposed in several particulars. The generic term *Symplocarpus* is derived from the Greek *symploke*, connection, and *karpos*, fruit; signifying here, united berries. The species has, with some moderns, and those not the least enlightened, shared, and with equal right, the ominous fame of the *Upas*, the deadly influence of which has for so many ages been the theme or quickening image of Eastern fable and the world's song. Its places of growth, which



Skunk Cabbage.

are uniformly low wet lands, and abundance wherever appearing, might easily have led to the imaginary endowment of those pestilential qualities which distinguish permanent marshes.

The *flowers* of the Symplocarpus augustispatha are of a purplish hue, inflorescent, and profusely cover the *spadix*, which is simple, almost spherical, and supported by a peduncle, of a light amber color; the *leaves*, which do not present themselves till several weeks after the flowers, forming large bunches, petiolate, attain from eight to eighteen inches in length, and two-thirds of the same in breadth; they are strongly veined, the middle rib projecting below, and furnished with large oblong sheathes; the *fibres* of the root are cylindrical, whitish, with brown rings, near the fourth of an inch in diameter, and often two feet in length. A funiculus, which for twelve or eighteen months is exceedingly minute, and apparently inert, connects the seminal tubercle, which is roundish and turbinate, solid, and carneous with the embryo; the *seeds* are numerous, spotted, and more particularly imbued with the allicaceous odor of the plant, from which the flowers, as noted, are so singularly exempt.

Medical Properties and Uses. This plant contains a volatile principle, which has not been insulated beside the acrid matter which is known to many of the Araceæ. Each part of it is endowed with anti-spasmodic qualities, so strong as to make it eminent in that class of medicines. When musk and other kindred applications have failed, it has proved effectual; as in a case of violent hysteria, when but two tea-spoonsful of the powdered root were given. The rapidity and completeness of its effects are alike remarkable. Its medicinal powers were ascertained at a very early period, when used as an expectorant, and for the relief of phthisical coughs. For these purposes it is still employed, whilst it is moreover an assured palliative in the paroxysms of asthma. While the latter continue, thirty or forty grains, at such times as may seem needful, may be administered and continued thereafter till the patient is entirely cured. It has been known to relieve the spasms which affect the abdominal

muscles in cases of parturition. Certain physicians have supposed it a remeny for chronic and acute rheumatism ; but a due consideration of its qualities renders this highly improbable. The seeds are more actively pungent, and, consequently, in asthmatic cases, more efficacious than the root. The expressed juice may be applied externally with good effect to ulcers, fresh wounds, and all cutaneous affections. When the leaves are used, as they frequently are, to dress blisters, with the intention of promoting a discharge, they should beforehand be so pressed as to present a smooth surface. In scurvy, and other diseases in which the Arum maculatum has proved useful, they may be beneficially employed.

As a palliative in the attacks of spasmodic asthma, it is very highly recommended by the Rev. Dr. Cutler and others. I have in several instances of this disease derived great advantage from the employment of this remedy. The powdered root, in the dose of from thirty to fifty grains, is to be given during the paroxysms, and repeated according to the urgency and obstinacy of the symptoms. The medicine ought to be continued for some time after the paroxysm has entirely subsided.

Dr. Thatcher, of Boston, states, that two tea-spoonsful of the powdered root of this vegetable gave very prompt and effectual relief in a case of hysteria, after the ordinary remedies for such diseases had been used without benefit. Also in the case of an old man, who had been for many years afflicted with a very troublesome cough and difficulty of breathing, I found nothing to give so much relief as this substance, administered in forty grain doses, once or twice a day. The plant should be kept in close stopped vessels, as its active properties seem to be of a very volatile nature. Decoction greatly impairs its virtues.



Peony Tree.

NAT. ORDER.

Ranunculaceæ.

PÆONIA EDULIS REEVESIANA. TREE PEONY.

Class XIII. Polyandria. *Order II.* Digynia.

Gen. Char. *Calyx*, of five sepals, leafy, persisting. *Corolla*, of five or of many petals, without claws. *Stamens*, below the germen. *Style*, none. *Stigmas*, from three to five. *Capsules*, three or five.

Spe. Char. *Roots*, thick, fleshy. *Stems*, many. *Leaves*, lanceolate.

The *root* is bulbous, fleshy, smooth, of a light yellow color, and near the base sends off a numerous quantity of small succulent fibres; the *stem* is upright, round, smooth, of a pale reddish-green color, and rises from two to four feet in height; the *flowers* are large, of a deep blood-red, sometimes tinged with purple, and stand singly upon long footstalks; *carpels* folicular, from two to five, large, many-seeded, and terminated with thick bilamellate stigmas; *seeds* rather globose and shining.

No plant, mentioned by Kempfer and Thunberg, in their Floras of China and Japan, excited greater interest among European botanists, than did the Tree Peony, or Moutan of the Chinese. The officers to the East India Company, whether residents at, or visitors of Canton, were frequently commissioned to enquire for and obtain this plant. Several single plants were received from time to time, between the years 1785 and 1790, which went to Kew. These, however, being treated as stove plants, uniformly failed: but a fresh supply of plants was purchased at Canton, and taken to England by Mr. Main, in 1794, consigned to Sir Joseph Banks and others.

Three varieties of these survived the voyage, and were rapidly propagated and distributed in British collections. Since 1820 many additional varieties have been introduced into this country, with other rare Chinese plants, and among them our present subject.

Propagation and Culture. The *Moutan*, or *Tree Peony*, and its numerous varieties, are much esteemed for the beauty of their flowers. They are quite hardy, but as their blossoms are apt to be injured by the cold blasts of spring, glass frames to answer the size of the plants should be placed over them, under which they will blossom in great perfection. A rich loamy soil suits them best.—Cuttings taken off in August or September, with a part of the wood of the preceding year attached, and planted in a sheltered situation, will root freely. They may be also increased by layers: the shoots, before they are laid down, require to have a longitudinal slit made on the under side: however, in this way they are longer in emitting roots than the cuttings. The hardy herbaceous species are amongst the most showy of border flowers. They thrive best in a rich loamy soil, and are easily increased by dividing the plants at the roots, taking care to leave the bud to each slip, or by seeds: by the last method many new varieties may be raised.

Medical Properties and Uses. This plant has never been used extensively as a medicine, but more in former years than at present. Dioscorides celebrates this plant as useful in promoting natural discharges, when deficient, and restraining some of them when too abundant. Cullen says, "its sensible qualities, in its recent state, promise some virtues. But these qualities are very inconsiderable, and at the same time very transitory, so that in the powdered root, the form in which it is most frequently employed, I can hardly perceive them to exist. In the frequent employment of them, I could never perceive any effect, either in epilepsy or other spasmodic affections." It is now discarded from the Materia Medica.



Hawthorn, Rose-colored.

NAT. ORDER.

Pomaceæ.

CRATÆGUS OXYACANTHA. ROSE-COLORED HAWTHORN.

Class XII. Icosandria. *Order II.* Di-Pentagynia.

Gen. Char. *Tube,* pitcher-shaped. *Limb,* in five divisions. *Corolla* petals, subrotund. *Stamens,* seated on a glandular ring, within the calyx. *Styles,* from two to five, smooth. *Fruit,* a fleshy pome, somewhat globular, closed, five-celled. *Seeds,* single or two together in each cell. *Shell,* bony.

Spe. Char. *Leaves,* small. *Branches,* spreading.

The *root* is long, angular, tough, fibrous, spreading, and of a pale yellowish color; the *stem* is upright, smooth, of a pale red color, and rises from three to seven feet in height; the *leaves* are rather smaller, and not so deep a green as the common sorts; the growth is very irregular, the *branches* spreading obliquely upwards or horizontal, with points drooping, thickly set with flower-bearing spurs along their whole length. Their habit, in other respects, is like the common hawthorn.

The *hawthorn* is called *white thorn* and *maythorn;* in France, *Aubepine;* in Germany, *hagedorn;* in Italy, *branco spino.* It is a shrub, found in various parts of the United States and Europe, and is introduced into narrow plantations, as an undergrowth. We have long had the common scarlet flowering Hawthorn in our shrubberies; and many of the wild ones, like the double white variety, may be seen to die off a bluish tint. But our subject is much more deeply vivid rose color than any other, and no less conspicuous in this re-

spect than admired for the profusion and elegant disposition of its corymbs of flowers along the sides of the branches, forming perfect garlands.

The common May Hawthorn, as it is usually called, with its snow-white blossoms, ranged along each spray, is admired by every body; but how much more attractive is this scarce and splendid variety, combining the intense coloring of the rose with the delicate elegance of the kalmia. The early history of this ornamental plant is somewhat imperfect. Its first introduction into the flower-garden was about twenty years ago; and, though it has been extensively propagated in some parts of England, and, no doubt, elsewhere, it does not appear to have been noticed, nor so extensively planted as it deserves.

Propagation and Culture. This species of Hawthorn is best fitted for shrubberies or plantations; but will not grow under the drip of trees, and, therefore, in a profitable point, is only to be considered valuable as affording impenetrable, close, durable, and easily raised fences, called quick-set hedges, and it bears clipping to any extent. The timber of such plants as grow single, and attain a tolerable size, is valued by the millwright and turner, and the roots by the cabinet-maker. It is often spoiled, Sang observes, through inattention after cutting. If it be allowed in entire logs or trunks, it soon heats and becomes quite brittle and worthless. It therefore ought to be cut up immediately into planks, and laid to dry. The *thorn* will not thrive in a wet soil, nor one very hard and poor, much elevated or much shaded: a free, deep loam, in an airy situation, suits it best. The seeds or haws of the *thorn* do not vegetate until the second year after sowing, unless they have been laid up in a heap mixed with earth, immediately after gathering, and turned several times, and sown in a bed the next spring: under such treatment many of them will vegetate the same year. The plants should remain in the seed-bed for two years, and afterwards planted out in nursery rows, where they may remain for two or three years before

they are planted for hedges. The best quick-set hedges are formed by planting them in two rows, about a foot or a foot-and-a-half apart. The hedges, two or three years after planting, ought to be clipped once or twice every year, in order to keep them in shape, and thicken them; and they should be kept perfectly clear from weeds, at least for the first few years.

Medical Properties and Uses. This plant was formerly considered as possessing powerful narcotic properties, and some instances are recorded of its fatal effects, proving a poison. The seeds are considered especially remarkable in producing this effect, and the leaves possess similar properties. Formerly, the *thorn* was used as a medicine, and was highly spoken of as an alterative, and valued in the treatment of scrofula, and cutaneous eruptions. Baron Storck made the expressed juice of the thorn into an extract, and employed it in cases of mania, epilepsy, and some other convulsive affections, and, as he reports, with some advantage. He has, however, been more reserved in his trial with this, and more temperate in recommending it, than with respect to most of the others he has practised with. Some other writers have also employed it, and recommended it, but they are chiefly the experiments of *Greding* which properly ascertained its powers and virtues.

This industrious physician employed it in a great number of maniacal cases; and, beginning with small doses, he proceeded to very large ones, but could not, in any one of the cases he employed it in, obtain a cure. Dr. Cullen, speaking of this plant, says: "I have employed this extract in a great number of epileptic cases, and in cases of epilepsy joined with mania, but, except in one single instance, have made no cure; and the great number of cases in which it failed, lead me to judge it to be a medicine seldom suited to the cure of those diseases." There are, indeed, cases of both diseases, reported by persons of good credit, in which the extract succeeded. But I do not admit this as a proof of any peculiar power in the thorn, as many other plants produce the same effect.

NAT. ORDER.

Asclepiadeæ.

ASCLEPIAS TUBEROSA. WHITE, OR PLEURISY-ROOT.

Class XIII. PENTANDRIA. *Order II.* DIGYNIA.

Gen. Char. *Calyx*, five-cleft. *Corolla*, monopetalous, five-parted. *Stamens*, five. *Seeds*, numerous.

Spe. Char. *Nectaries*, five, contorted, ovate, concave, putting forth a little horn.

THE genus to which this superb plant belongs, takes its name from Æsculapias, the god of medicine. It contains an assemblage of some of the most beautiful productions of the vegetable kingdom; and the *Asclepias tuberosa* is, perhaps, one of the most elegant plants of our country.

The *root* is large, and somewhat irregularly tuberous, sending up many erect, and sometimes decumbent hairy stems, branching at the top; the *stems* are round, very hairy, and of a reddish color; the *leaves* are scattered, and supported on petioles, little more than the eighth of an inch in length, varying in being lanceolate-oval, long-oval, lanceolate, and, in the variety *decumbens*, linear-lanceolate, and repand on the margin; they are of a deep rich green above, much paler underneath, and very hairy; the *umbels* are terminal, and somewhat in the form of a corymb; in the variety they are lateral; the bracteal *involucre* is composed of numerous narrow-linear, nearly subulate membranaceous leaves, of a salmon color; the *flowers* are situated in terminal corymbose umbels, and are of a brilliant orange red color; the *fruit* is a long, narrow, roundish pod, pointed at each end; and the seeds, like the rest of the genus, are



White, or Pleurisy Root.

furnished with a long silky appendage. The plant continues a long time in bloom, at which time its rich green leaves contrasted with its gorgeous inflorescence, render it an universal favorite.

This plant is a native of North America, and its geographical distribution very extensive, being found from the Northern States to the Southern boundary of the Union; but it is most abundant in the Carolinas and Georgia. In the neighborhood of New-York it is somewhat rare, but in many parts of New-Jersey quite plenty. It is generally found in fields, sometimes in meadows; and flowers in the months of June and July. The root alone is the part used for medical purposes.

Medical Properties and Uses.—So many estimable qualities are usually attributed to this very favorite plant and popular medicine, that it is not easy to assign it a proper place in the Materia Medica. If the White-root is deserving of half its reputation, it is richly entitled to a distinguished rank in this work; and so numerous and respectable are the authorities in support of its celebrity, that it is with considerable diffidence I venture to lessen, in the least degree, its elevated character as a medicine, by the intimation of any doubts of its just claim to its present undisputed reputation. My own experience with it is confined to a few trials in cases in which it is reputed to be peculiarly beneficial; and these have resulted in an opinion, that there is some foundation for the encomiastic accounts of this medicine. It may be safely recommended to physicians, as a mild cathartic, particularly suitable to the complaints of children, as it leaves the bowels in a tranquil condition; and as a certain diaphoretic, attended with no inconsiderable expectorant effect. But a regard for truth obliges me to state that the virtues of this plant are, as far as my experience extends, considerably exaggerated, there being ascribed to it a multitude of powerful, extraordinary, and almost inestimable properties, to which its virtual character affords no substantial claim. It must be remembered, however, that these remarks are not intended to stigmatize the White-root as worth-

less, for I deem it a valuable article: my only object is to endeavor to present to the public its prominent virtues, divested of what in my own opinion is an aggregation of imputed but unreal qualities. A gentleman of Virginia, who, judging from his own writings, is not a regular physician, first brought this plant into very general notice, as a cure for the pleurisy: hence it is often called Pleurisy-root. He has been quoted by the late Prof. Barton, and subsequently by the compilers of the American dispensatories; and thus have his exaggerated accounts been extensively diffused throughout our country, without any good effect, perhaps, than that of bringing a plant into general notice, which really possesses medicinal virtues, though not of the nature and number specified in those accounts. To the gentleman alluded to, however, is not to be imputed the discovery of the remedial effects of White-root.

Dr. Shœpf mentions this plant, and specifies the property for which it seems to me most probable it will become useful—its effect in inducing diaphoresis. He says it is a diaphoretic in the dose of one drachm; that it is slightly astringent; that the powdered root is useful in cholic; an aqueous decoction in hysteria and menorrhagia; and a vinous decoction in dysentery. This account by Dr. Shœpf, of the "*Asclepias tuberosa*," as he calls it, inadvertently escaped the attention of the late Prof. Barton, otherwise he would, it is presumed, have quoted this author when speaking of the plant in question. Under the names "Butterfly-root, Pleurisy-root," Shœpf also speaks of the use of some plant in pleurisy and febrile diseases, and then tells us, on the authority of the late Rev. Dr. Muhlenberg, that the name of Pleurisy-root was first applied to the *Asclepias tuberosa*, and that a decoction of it was esteemed a certain remedy for pleurisy. Prof. Barton informs us that "the rest of this plant is said to possess a remarkable power of affecting the skin, inducing general and plentiful perspiration, without greatly increasing the heat of the body; that it is much employed by the practitioners of medicine in some parts of the United States, particularly

in Virginia, as a remedy in certain forms of fever, in pleurisy, and other affections. The root is used both in powder and in decoction. Sometimes it is used in combination with antimonials." He further says that the decoction often induces perspiration when other medicines have failed to produce this effect; and, on the authority of a correspondent, that in the low states of typhus fever, it induced perspiration when other sudorifics failed. In a communication which I received a short time since, it appears that the *Asclepias tuberosa* is in frequent use by the regular physicians, as a gentle cathartic in difficult dentition, and as a diaphoretic.

It may be said with truth, that the *Asclepias tuberosa* is a certain, and of course a useful diaphoretic; whether it acts in this way, as it is said to do, without increasing the force of the circulation, or augmenting the heat of the body, I am not prepared by any extensive use of the plant to answer: at the same time it must be confessed that many are the instances where this medicine has produced these effects, that the plant has supported its reputed character in this respect. And the multitude, respectability and strength of evidences in favor of this very desirable quality, leave no room to suppose that the plant has received, so far, any undue encomiums. Its expectorant effect in pneumonia and catarrha, is substantiated by a multiplicity of corroborative facts, the relation of which is derived from physicians of undoubted respectability. The late Prof. Barton esteemed the *Asclepias tuberosa* as one of the most important of our indigenous medicines; and he says the powdered root is escarotic. When taken internally, the dose is from twenty to thirty grains of the powder. This article may be concluded with the following quotation from Thatcher's Dispensatory. The extensive experience of the gentleman there alluded to, with the plant under consideration, is entitled to great attention.

"The powdered root frequently acts as a mild cathartic, but it is particularly valuable for its virtues as an expectorant, diaphoretic and febrifuge, and in this respect its efficacy is amply confirmed by

the testimony of Dr. Benjamin Parker, of Massachusetts, from his own observations during an extensive practice for many years in Virginia. From the successful employment of the White-root for twenty-five years, this respectable physician has imbibed such confidence, that he extols it as possessing the peculiar and almost specific quality of acting on the organs of respiration, powerfully promoting suppressed expectoration, and thereby relieving the breathing of pleuritic patients in the most advanced stage of the disease; and in pneumonic fevers, recent colds, catarrhs, and diseases of the chest in general, this remedy has in his hands proved equally efficacious. He directs it to be given in the form of strong infusion, a tea-cupful every two or three hours. By many families in this country this root has long been esteemed as a domestic medicine, resorted to for the relief of pains of the stomach, from flatulency and indigestion; hence the vulgar name of Wind-root, by which it is known in some parts of the country; but from its color it is generally called White-root. It is said that by a perseverance for several weeks in the use of about one drachm of the powdered root every day, the lost tone of the stomach and digestive powers has been restored.



Bind weed

NAT. ORDER

Convolvulaceæ.

CONVOLVULUS PANDURATUS. BIND-WEED.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, perianth, one-leaved, five-angled, tubular, oblong, obtuse. *Corolla*, one-petalled, five-angled, tubular, converging. *Stamens*, filaments five. *Capsules*, ovate, enclosed in the calyx, one, two, or three-valved. *Receptacles*, convex, largely dotted, and joined to the dissepiment. *Seeds*, two, of a roundish form.

Spe. Char. *Stem*, twining, herbaceous, angular, naked at the base, where the filaments are dilated. *Leaves*, cordate or panduriform. *Stamens*, one-half shorter than the corolla. *Calyx*, smooth, slightly mucronate. *Outer Sepals*, unequal, and mostly obtuse.

Of the numerous species comprehended by the Convolvulus, a word derived from *convolvere*, to roll round, sixteen are indigenous to this country. The *Convolvulus panduratus*, though an inhabitant of almost every state, appears only in corn-fields, on the borders of woods, sandy tracts, and on the edge of waters, from which may be inferred its constant necessity for extreme warmth and light. In the southern part of New-York and on Staten Island it is abundant.—The *root* is perennial, and of such dimensions as frequently to exceed fifteen pounds in weight; the *stem* most commonly trails on the ground; when young it is pubescent, but attains smoothness at the period of completed growth: the *leaves*, two, petiolate and entire,

are on the upper surface of a deep green, and on the under of a lighter shade. As the flowers, which are peduncled, large and white, approach the summit of the stem, they separate further; several are usually in a fascicle; their *buds* pass from a purplish hue, tinctured with red to a straw-like color; the three *inner sepals*, which are the largest, are commonly tipped with an abrupt subulate point; the *tube* of the corolla is beautified with the purple color. It flowers from June to August.

Medical Properties and Uses. In taste this plant is bitter, slightly astringent, and, like many others of the same genus, somewhat cathartic. These qualities, which assimilate it in effect to rhubarb, and provide for it a ready and needed sphere, are drawing towards it extensive notice from medical practitioners. The very peculiarity of its virtues has tended to retard its acknowledgment. In calculous affections it holds claim as a remedy. By its means calculous granulæ has been administered with facility. In addition to this it may be considered as possessed of diuretic qualities, a supposition which will probably be confirmed by further trial. Its root has not unfrequently been sold for mechoacanna, according to a writer in the Materia Medica, and who observed its collection and sale to this end. Other properties are rendered not improbable by the fact that with empirics whose private interest it is to hide their mode of practice, this plant has been in constant requisition.



White Cabbage Rose.

NAT. ORDER.

Rosaceæ.

ROSA PARVIFLORA. WHITE CABBAGE ROSE.

Class XII. Icosandria. *Order III.* Polygynia.

Gen. Char. *Fruit*, depressed. *Peduncles*, hispid. *Petioles*, pubescent, somewhat prickly. *Stem*, smooth. *Leaflets*, elliptical-lanceolate. *Flowers*, mostly in pairs.

Spe. Char. *Calyx*, urceolate, fleshy, five-cleft. *Petals*, five. *Seeds*, numerous, hispid.

This variety of the Rose is a native of the United States, and is found in various parts of the country, from Maine to Carolina, inhabiting the declivities of hills and rocky places. The *calyx* with the tube is contracted at the mouth, with a five-parted limb; the *segments* are somewhat spirally imbricated at the apex in æstivation, and are usually pinnately divided, and numerous; the *carpels* are numerous, bony, inserted on the inside of the tube of the calyx, which at length becomes baccate, and encloses them; they are dry and indehiscent, bearing each a style on the inner side; *styles* exserted from the constricted part of the calycine tube, sometimes distinct, sometimes collected into a columnar style; *seeds* solitary, exalbuminous, inverted; *embryo* straight, with flattish cotyledons.

The *Rose* is known by almost every person at first sight, and has been a favorite flower from time immemorial among the civilized nations of both continents. The shrub varies in size in different species and varieties, and the colors are red, white, purple, yellow, black, striped, or in almost numberless shades and mixtures, from single to semi-double and double. Roses are cultivated in every

garden, from the most humble cottage to the gorgeous palace. Some species, such as the *Rosa centifolia*, *Rosa damascena*, &c., are also cultivated on a large scale by commercial gardeners, for distilling rose-water, and for making ottar, or essential oil of roses. Six pounds of the petals will impregnate by distillation a gallon of water strongly with its odor; but a hundred pounds afford hardly half an ounce of ottar. The Rose is also used in medicine. Botanists are not agreed as to the number of original species of this genus; and, notwithstanding the labors of many scientific men, the genus still remains a chaos, from which it can never be extricated.

Propagation and Culture. The varieties are raised from seed in warm climates, but will not ripen well in this country. A number of varieties have been raised in this country, especially of the *Rosa spinossissima*, or Scotch Rose. New varieties are raised in France and Italy, annually. Some are quite black, others shaped like a ranunculus, and many of them highly odoriferous. New varieties are chiefly propagated by seed, but mostly by layers, for continuing approved sorts. They are also increased by budding, cuttings, and suckers.

By seed. The hips containing the seeds are obtained from semi-double and single flowers; and to increase the chance of new varieties, these should be taken from plants that have been planted among or near to the kinds of which a cross is desired. Extracting the stamens from one flower, and dusting the stigmas with the pollen of another kind might answer in most instances. In France, Italy, and some parts of this country, the usual mode is to form a plantation of double and semi-double sorts, mixed indiscriminately, and take the result of promiscuous impregnation: this is often done in some of the extensive nurseries of this country. The hips generally ripen in September or October. The seeds do not vegetate till the second season after sowing. The first year, instead of sowing them, they may be preserved among sand, or the hips entire may be so preserved a full year, when the husks will be perfectly rotten, and

the seed being separated and sown in February, will come up in May or June following. The seeds should be sown in light soil and in a shady situation, or they may be covered with earth from half to an inch in depth, according to the size of the seeds. Early in the second spring they may be planted in rows from one to two feet apart every way, according to the size of the sorts. Here they may remain till they flower, which varies in the different sorts from the third to the fifth year, but most commonly they flower the fourth summer.

By layers. The common mode is to lay down the young shoots of the preceding summer late in autumn, or early in the succeeding spring, and then, with the exception of the *Moss Rose*, and one or two others, they form rooted plants by the next autumn. But it is now found, that if the same shoots are laid down when the plant is beginning to flower in July, they will, with a few exceptions, produce roots, and be fit to remove the same autumn, by which a whole year is gained. Such sorts as do not root in one year must be left on the stools till the second autumn; but layers made when the shoots are in a growing state, and furnished with healthy leaves, root much more freely than shoots of ripe wood. After the plants are removed from the stools, they are planted in nursery rows, and in a year the blossom buds: having been carefully pinched off from the first laying down, they will be fit for removal to their final destination. The stools are then to be pruned, and the soil stirred and enriched.

By suckers. Many of the commoner sorts admit of being rapidly multiplied in this way, and the plants obtained may be planted in their final destination at once.

By cuttings. Most sorts might be propagated in this way from cuttings of young wood, cut at a joint where it is beginning to ripen, and planted in sand and vegetable mould, under a hand-glass. But this mode is only adopted with such sorts as strike easily, as the Indian and Chinese kinds.

By budding. This mode of propagating roses is adopted only with the rarer kinds, and such as are difficult to propagate by layers; for it is found that plants so originated, even though on stocks of the hardier sorts, are less durable than such as are raised by any of the other modes. But the chief use of budding in the culture of the *Rose*, is to produce standard-roses, or to produce several sorts from the same tree or bush. Standard-roses are a modern invention, it is generally supposed, of the Dutch, first carried to Paris, and about thirty years ago to England. They are highly artificial objects of great beauty, and form magnificent ornaments to borders. The stocks are either *Rosa villosa*, the Tree Rose, or of any sorts of wild roses, which grow to a large size. They are budded at different heights, from three to seven feet, but usually between five and six from the ground. The stocks are procured from woods and copses: and, after being planted in nursery lines, are often budded the same summer; sometimes in summer by the scallop mode of budding, and never later than the succeeding spring or summer by the common mode. Generally two buds are inserted on opposite sides of the stock, but often three, four, or a dozen, in alternate positions on the upper six or twelve inches of the stem. Every stock is supported by a rod, which should reach a foot or eighteen inches higher than the situation of the bud: to this rod the stock is tied, and afterwards the shoots from the buds, which are otherwise liable to be blown out by high winds. The nurserymen of France, being supplied with stronger stocks than can be procured in this country, and having a better climate, and more experience in the culture of roses, excel us in this department of rose propagation, and their standards afford an article of commerce with other countries. Their common plants, raised by layers, are also in extensive demand, but in these we equal if not surpass them.

Final situation. No species of Rose, wild or cultivated, thrives well in or near large towns, on account of the smoke or confined air. The Yellow and Austrian Roses, *Rosa lutea* and *Rosa bicolor*, are

difficult to flower in any situation. Roses are generally planted in the front of shrubberies, and in borders: they are also planted by themselves, in rose-gardens or in rosaries, in groups on lawn or gravel, either with common box, or other edgings, or with edgings of wire, in imitation of basket-work: these last are called baskets of roses: the ground enclosed in the basket margin is made convex, so as to present a greater surface to the eye, and increase the illusion: the shoots of the stronger sorts are layered, or kept down by pegs till they strike root, so that the buds of the shoots furnished with buds appear only above the soil, which is sometimes covered with moss or small shells. Under this treatment the whole surface of the basket becomes in two or three years covered with rose-buds and leaves, of one or of various sorts. Where one of the larger free growing sorts is employed, as the *Moss Rose*, or any of the Province varieties, one plant may be trained so as to cover a surface of many square yards. Where different sorts are introduced in the same basket, they should be as much as possible assimilated in the size of leaves and flowers, and habits of growth, and as different as possible in the colors of their flowers. By mixing small-flowered with large-flowered sorts, the beauty of the former is lost, without adding to the effect of the latter. In rosaries usually but one plant of a sort is introduced, and the varieties which most resemble each other are placed together, by which their distinctive differences are better seen. Particular compartments are often devoted to one species, as the *Scotch*, *Chinese*, *Yellow*, *Burnet-leaved*, &c., which has an excellent effect. Sometimes a piece of rock-work in the centre is covered with creeping roses, and on other occasions they are trained to trellis-work, which forms a fence or hedge of roses round the whole. In this hedge standard-roses are sometimes introduced at regular distances: a grove of standards is also frequently formed in the centre of the rosary, and sometimes they are introduced here and there in the beds. Standard-roses, however, have certainly the best effect in flower borders, or when completely detached on a bed: their

sameness of form, and that form very compact and bushy, prevents them from grouping as *Rose* plants, and in their flowers: and therefore to display these beauties to the best advantage, they require to be seen singly, or in succession. This is the case where they occur as single objects on a lawn, or in the centre, or here and there among groups of flowers, or in lines or avenues along flower-walks

Suitable Soil. Most species of the Rose, in their wild state, grow in sandy or rather poor soil, excepting such as are natives of woods, where the soil is richer, and comparatively moist. But all the cultivated Roses, and especially the double-flowering kinds, require a rich loamy soil, inclining to clay rather than sand, and they require also, like most double flowers, plenty of moisture when in a growing state.

General Culture. To produce strong flowering Roses, requires some attention in pruning: old wood should be yearly cut out, and the young shoots thinned and shortened, according to their strength, and whether number or magnitude of flowers be wanted. Those sorts which throw out numerous suckers, should be taken up every three or four years, reduced and replanted, and most sorts, excepting the standards, will be improved by this practice, provided attention is sufficiently paid in removing the old soil and replacing it by new. The points of the shoots of the more delicate sorts of Roses, are very apt to die when pruning is performed in winter or spring: to avoid the consequences of this evil, many give a second pruning in June, or do not prune the tender sorts at all, till the beginning of that month. A very good time for performing that operation is immediately after the bloom is over, cutting out old exhausted wood, shortening shoots which have flowered to a good bud, accompanied with a healthy leaf, but leaving such shoots as are still in a growing state till October. Where very large roses are wanted, all the buds, except that on the extreme point of each shoot, should be pinched off as soon as they make their appearance, and the plant liberally supplied with water. To lessen evaporation, and keep up a constant

moisture at the roots of the roses, the gardeners generally mulch them with half rotten stable dung, or partially rotten leaves.

Forwarding and Retarding Roses. The earliest flowering Rose is the *Monthly*, which, in mild seasons, and planted against a wall, will sometimes flower in the beginning of April. The Roses next in succession are the *Cinnamon*, which flowers in May; the *Damask*, in the end of May or beginning of June; the *Blush, York and Lancaster, Province* and *Dutch Hundred-leaved*, in June, July and August. The *Virginia* and *Musk Roses* are the latest sorts: they flower in September, and, in shady situations, will sometimes continue in bloom till the middle of October; but the earliest Rose (the Monthly) is also the latest, and generally continues flowering till interrupted by frost. The earliest sorts may be materially forwarded by being planted against a south wall, and, if portable sashes be placed before them, and the wall is either flued or heated by fires, the plants may be brought to flower in February or March. The *Monthly Rose*, being protected by glass in autumn, or aided by artificial heat, may be continued in bloom till Christmas. A very common mode of obtaining late Roses, and one of the greatest antiquity, is by cutting all the flower shoots off when the buds begin to appear, or by rubbing off all the rudiments of shoots of every kind, early in the spring: a second crop is in consequence produced, which will not be in a state to bloom before the autumn.

Forcing the Rose. The best sorts for this purpose are the Common and Moss Province. The Indian sorts force well, or rather in stoves continue in bloom all the year; but the more common varieties, not being fragrant, they are in less repute than the European Roses. Rose plants should be a year in pots, previous to the autumn when it is intended to force them: they should be planted in pots six or eight inches in diameter, in rich loam, and placed in an open, airy situation, their flower-buds pinched off as they appear, and the plants put into a state of rest, by excluding sun and rain, but not a free circulation of air. Abercrombie says, "There is no certainty of

obtaining a fine blow of roses in the depth of winter by the most expensive artifices; and yet fine flowers may be produced early in the spring by any ordinary stove, put in operation in December. When the plants are first introduced, keep the air of the house about 55°, never letting it fluctuate to more than two or three degrees below the above. In the second week aim at 60° as the standard; in the third week 65°. When a month has nearly elapsed, begin to increase the heat gradually to 70°: having brought it to this standard, let it afterwards exceed it from three to five degrees, rather than sink below. A succession may be kept up by introducing some pots every eight or ten days.

Insects. All the species of *Rosa* are very liable to the attacks of insects, especially of the aphides: some, particularly the Briar and Scotch Rose, are attacked by the cynips *rosæ*, which, by puncturing the bark, occasions the production of rose-galls, and of those massy tufts often seen on wild roses, which were formerly known under the name of bedequar, and used in medicine. A great number of insects seem fond of the flowers of roses, from the earwig to the seemingly harmless lady-bird, which deposits its larvæ in the leaves of various species, both wild and cultivated. There seems no remedy for insects on plants in the open air so simple and effectual as gathering them by hand, or removing the leaf on that part of the shoot which is infected by them. Under cover, tobacco smoke will prove an effectual remedy for the aphides; but the larvæ of many others, and especially of the tipula and the tenthredinidæ, which occasion the wrapping up and shrivelling of the leaves, can only be removed by hand.

Medical Properties and Uses. See *Rosa centifolia*, Vol. I., p. 6; or *Rosa Canina*, p. 88 of this volume.



Striped Dalea.

NAT. ORDER.

Leguminosæ.

DALEA ALOPECUROIDES. STRIPED DALEA.

Class XVI. Monadelphia. *Order V.* Decandria.

Gen. Char. *Calyx*, five-cleft. *Vexillum*, short, free. *Stamens*, ten. *Legume*, ovate, one-seeded. *Leaves*, impari-pinnate.

Spe. Char. *Stem*, glabrous and erect, having from ten to fifteen pairs of linear-elliptic retuse leaflets; *Spikes* of flowers, ovate or cylindrical.

This beautiful flower is almost universally cultivated throughout the United States; more particularly as an ornament than for any valuable purposes. The *stem* is upright, hard, woody, nearly branchless, and rises from three to six feet in height; the *calyx* is five-cleft, five-toothed, and sometimes beset with numerous glands; the *wings* and *carina* are generally found adhering to the tube of the stamens; the *vexillum* is short and free; *stamens* ten, monadelphous; *legume* ovate, one-seeded, shorter than the calyx; *stipules*, adhering to the petioles at the base; *leaves* generally having the terminal leaflet sessile; *flowers* disposed in pedunculate spikes, which are opposite the leaves.

The Dalea is considerably cultivated at the present time as an ornament in the garden: its value, otherwise than for its beautiful and elegant appearance, is comparatively limited. As a medicine, we have no accounts of its ever being considered of sufficient value to warrant its use, or even a trial. Ancient writers have given no account of this plant, nor do they seem to have known of its existence. Modern botanists, however, have discovered and figured fifty-

two varieties, all of which are worthy of the gardener's notice, especially as an ornament. A more particular description of the varities, their different modes of cultivation, and their properties and uses, will be entered into and given in a future number of this work.

Propagation and Culture. All the species of this most beautiful genus thrive much the best in a mixture of loam and peat, and the shrubby and perennial kinds are easily increased by young cuttings, planted in sand, with a hand-glass placed over them; those of the stove species in heat. The seeds of annual kinds should be sown in pots, which should be placed in a hot-bed, and the plants separated and planted into other pots, singly, when they have grown to a sufficient size for that purpose; and some of them may be planted out into the open border in a warm, sheltered situation, where they will probably ripen their seeds. None of the species are worth the trouble of cultivation, except in botanical gardens.

Medical Properties and Uses. The medical virtues of this plant have never been considered of sufficient importance to give it a place in the Pharmacopœia, and consequently it has never been regarded as of much value. Prof. Lindley, speaking of this plant, says that the extract, taken in quantities, has been known to do harm, producing symptoms that were considered dangerous, resembling those of Belladonna and Nightshade.



The Peach.

NAT. ORDER.

Amydalaceæ.

AMYDALUS PERSICA. THE PEACH.

Class XII. Icosandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, quinquefid, inferior. *Petals*, five. *Drupe*, having a shell perforated with pores. *Skin*, pubescent.

Spe. Char. All the serratures of the *leaves*, acute. *Flowers*, sessile and solitary.

The common *Peach-tree* grows to a considerable height, and sends off numerous spreading branches: the *leaves* are long, narrow, pointed, elliptical, acutely serrated, on footstalks, and alternate; the *flowers* are sessile, purplish, solitary and large; *calyx* tubular, divided at the margin into five ovate segments, and at the base beset with numerous scales; *petals* five, inversely ovate, spreading, attached by short claws; *filaments* numerous, tapering, inserted into the calyx, furnished with purplish anthers; *germen*, roundish, downy; *style* short, simple, terminated by a round stigma; the *fruit* is too well known to require any description. The tree is of quick growth, and not of long duration. It blossoms in April, and ripens its fruit in August and September.

Dr. Sickler considers that Persia is the original country of the Peach, which in Media is deemed unwholesome, but when planted in Egypt becomes pulpy, delicious and salubrious. The Peach, also, according to Columella, when first brought from Persia into the Roman empire, possessed deleterious properties, which T. A. Knight concludes to have arisen from those Peaches to be only swollen almonds (the *tuberes* of Pliny), or imperfect Peaches, and which are

known to contain the prussic acid, which operates unfavorably on many constitutions. The tree has been cultivated from time immemorial in many parts of Asia: when it was introduced into Greece is uncertain: the Romans seem to have brought it direct from Persia during the reign of the emperor Claudius. It is first mentioned by Columella, and afterwards described by Pliny.

Use. The Peach is a dessert fruit of the first order, and makes a delicious preserve. In Maryland, Virginia, and many parts of New Jersey, a brandy is made from the fruit; the best Peaches are carefully picked in baskets and sent to market, and the inferior ones either used for the manufacturing this liquor, or fed to the pigs. The leaves steeped in gin or whiskey communicate a flavor resembling that of noyeau.

Criterion of a Good Peach.—It may be observed, that a good Peach possesses these qualities—the flesh is firm, the skin is thin, of a deep or bright-red color next the sun, and yellowish green next the wall; the pulp is of a yellowish color, full of high flavored juice, the fleshy part thick, and the stone small.

Varieties.—Linnæus divides his *Amygdalus Persica* into two varieties: that with downy fruit, or the *Peach*, and that with smooth fruit, or the *nectarine;* but in the present work the *Peach* and *nectarine* will be established into a genus called *Persica*, and the *Peach* and *nectarine* made distinct species. There are, however, various instances on record of both fruits growing on one tree, and even on the same branch; and cases have occurred of a single fruit partaking of the nature of both. The French consider them as one fruit, arranging them in four divisions: the *peches*, or *free-stone Peaches*, the flesh of whose fruit separates readily from the stone and the skin; the *peches lisse*, or *free-stone nectarines;* the *pavies*, or *cling-stone Peaches*, whose flesh is hard and firm, and adheres both to the stone and the skin; and the *brugnons*, or *cling-stone nectarines.*—Many horticulturists consider the Peach and almond as one species; but we shall follow the established nomenclature, and treat them as

distinct fruit. There are many varieties of the Peach. Tusser in 1573 mentions Peaches white and red; Parkinson in 1629 enumerates 21 sorts; and Miller in 1750, 31 varieties. Several attempts have been made to class the varieties of *Peaches* and *nectarines* by the leaf and flower, as well as the fruit; some also founded on the glands of the leaves; but none of these arrangements have been found sufficiently perfect for the purpose of this work.

Culture of the Peach in the open air. Selection of Sorts.—We are informed by those who are familiar with rearing Peach orchards, that except the situation be completely favorable as to climate, aspect, and shelter, forbear to plant very early, or extreme late fruit, for frost will almost invariably cut off the former, when blooming and setting, and the latter will hardly ripen under the declining heat of autumn. The Peaches proper for a small garden, according to Forsyth, are: the *Early Avant, Small Mignonne, Anne Royal, George, Royal Kensington, Noblesse, Early Newington, Galande, Early Purple, Chancellor, Nivette, Catherine, and Late Newington.*

Propagating to procure new varieties. The Peach is raised from the stone; and this mode is pursued in this country even from procuring trees for common purposes. The Peaches called *Acton-Scot* and *Spring-grove* were thus originated; the parent trees were dwarfs planted in large pots; these being brought into a vigorous state of health, the pistils of the blossoms of one sort were impregnated with the pollen of another: only three Peaches were suffered to remain on the same tree; and from saving the stones of the above-mentioned Peaches, other varieties were produced; the male parent of the latter was the large *French Mignonne;* and the female the little red nutmeg, which choice is consistent with the general principle, that the most perfect and vigorous offsprings will be obtained of plants, as of animals, when the male and female parent are not too closely related to each other. The Peach does not, like many other species of fruits, much exercise the patience of the gardener who raises it from seed; for it may always be made to bear when three years old. In

prosecuting such experiments, Mr. Knight recommends the seedling Peach-trees to be retained in pots, and buds from them only to be inserted in older trees; for their rapid and luxuriant growth is extremely troublesome on a wall, and pruning is death to them.

Propagation to perpetuate varieties. The Peach is generally budded on Damask-plum stocks, and some of the more delicate sorts on apricot stocks, or old apricot trees cut down, or on seedling Peaches, almonds or nectarines. Knight recommends growing almond stocks for the finer nectarines and apricots, as likely to prevent the mildew, and as being allied to the Peach. He says, "almond stocks should be raised and retained in the nurseries in pots, as they do not transplant well." Perform the budding in July and August, in the side of the stock, one bud in each; they should be inserted near the bottom for the principal wall-trees, and at the height of three or four or five feet for riders. The bud will shoot the following spring, and attain the length of three or four feet in the summer growth. After the budded trees have ripened the first year's shoots, they may either be planted where they are to remain, or to be trained in the nursery, for two, three or four years, till in a bearing state. Whether the plants be removed into the garden at a year old, or remain longer in the nursery, the first year's shoot from the budding must be headed down either early in June the same year, to gain a season, or in March following, to four, five or six eyes, to produce lateral shoots, with one upright leader to begin the formation of the head in a fan-like expansion; the second year's shoot should also be shortened to a few eyes at the return of June or March; and those also of the third year, in such degree as may seem expedient.

Suitable Soil. A good soil for Peach-trees, according to Abercrombie, "is composed of three parts mellow unexhausted loam, and one part drift sand, moderately enriched with vegetable mould. If the soil be lean and poor, and at the same time light, have the borders improved by decomposed dung, and fertile mellow earth; if the ground be strong and heavy, add some light earth or dung; if very

gravelly, remove the grossest part, excavating to the proper depth; and in the same proportion apply a compost as above. Let the soil be made good to the depth of thirty inches or three feet. The nectarine wants the warmer, richer and deeper soil, if any difference be made. Bad, cold ground, or an exhausted mould, is often the cause of the trees gumming." Forsyth says, "Peaches require a lighter soil than pears and plums, and a light mellow loam is best."

Choice of plants. Abercrombie, Forsyth, Nicol, and most authors agree in recommending the choice of trees, two, three or four years trained. Forsyth says they should be procured in the latter end of October or beginning of November, as soon as the leaf begins to fall.

Final planting. In England, France, and many parts of Europe, the Peach is almost universally planted against walls, in order to protect them against frosts: in some warm situations they have been tried as dwarf standards, or as low espaliers, covering with mats in the spring, to protect their blossoms; but in this country, especially in many parts of New Jersey and Pennsylvania, the Peach is planted in the open field, in rows about four feet apart, and from six to twelve inches from each other, and with proper attention form beautiful nurseries. Early autumn planting is best on dry soils. Spring planting may be successfully performed in February and March, but the sooner the better, that the trees may take root immediately before the dry warm weather commences.

Mode of bearing. All the varieties of the Peach and nectarines bear the fruit upon the young wood of a year old; the blossom-buds arise immediately from the eyes of the shoots. The same shoot seldom bears after the first year, except on some casual small spurs on the two years wood, which is not to be counted upon. Hence the trees are to be pruned as bearing entirely on the shoots of the preceding year, and a full supply of every year's shoots must be trained in for successional bearers the following season.

The summer pruning. In May and June, and occasionally in

the succeeding month, is to regulate the shoots of the same year, and to prevent improper growths by rubbing off the buds. Pinch off fore-right buds or shoots, and pinch off or cut out ill placed, very weakly, spongy or deformed shoots, and very strong luxuriant growths, retaining a plentiful supply of good lateral shoots in all parts of the tree, and leaving the leader to each branch. Let them mostly be trained in at full length all summer, about three inches asunder, for the next year's bearers, and divest them of any lateral twigs, to prevent a thicket-like intricacy, and to promote a healthy, fruitful growth in the shoots left. In the course of the summer regulation, if any partial vacancy occurs, or should a young tree under training want an additional supply of wood, shorten some conveniently placed strong shoot in June to a few eyes, to furnish a supply of laterals the same season.

The winter pruning—May be performed at the fall of the leaf, and thence, according to some professional writers, at any time in mild weather until spring. It should be completed in February, or early in March, before the blossom-buds are considerably advanced, which are distinguishable by being round, plump and prominent, while the leaf and shoot buds are oblong and narrow. There is some advantage in pruning when the blossom-buds can be certainly known. Retain in all parts of the tree a competent supply of such regular grown shoots of last year as are apparently fruitful in blossom-buds. Most parts of these should be shortened, not indiscriminately, but according to their strength and situation: the very strong shoots should be left longest, being topped about one-fourth or one-third of their length; shoots of middling vigor reduce one-third, and prune the very weak to two or three buds. Always cut at a shoot-bud to advance for a leader; sometimes a shoot-bud lies between a twin blossom-bud; cut half an inch above the bud. As many new shoots as will lay from three to six inches asunder may be deemed a competent supply for next year's bearers. Cut out quite close the redundant, irregular, and other improper shoots; remove or reduce

some part of the former bearers of the two preceding years; cutting the most naked quite away and others down to the most eligible younger branch or well-placed shoot. Also take out all diseased and dead wood, retaining ground where necessary to fill a vacuity. In cold and late situations, some recommend a mode of pruning adapted to obtain fruit-bearing spurs on the Peach, and these spurs are found to be best calculated in such situations and late seasons to generate well organized and vigorous blossoms. Instead of taking off so large a portion of the young shoots, and training in a few only, to a considerable length, as is usually done, and as I should do myself, to a considerable extent, say, in New Jersey and other favorable situations, I should preserve a large number of young shoots, which are emitted in a proper direction, in early spring, by the yearling wood, shortening each where necessary by pinching off the minute succulent points, generally to the length of one or two inches. Spurs which lie close to the wall are thus made, upon which numerous blossom-buds form very early in the ensuing summer. It is only in cold and late situations that the mode of management above suggested is recommended. The spurs must not be shortened in the winter or spring, till it can be ascertained what parts of them are provided with leaf-buds. The chief rule which is recommended to follow is, never to allow the shoots that are left for bearing fruit to run to any length from the strong wood, for which reason, when the trees are pruned in autumn, the bearing branches for the next year are shortened, taking care not to leave more fruiting-buds than will be thought to come to perfection.

Training. The Peach is almost universally trained in the fan-manner, either straight-lined or wavy, though some contend that it bears better in rich soils, when two leading branches are encouraged, and the bearing shoots trained outwards from these, so as to form a sort of horizontal training.

Thinning the fruit. In favorable seasons the blossoms often set more fruit than the trees can support, or than have room to attain

full growth; and if all were to remain it would hurt the trees in their future bearing; therefore they should be timely thinned when of the size of large peas or half-grown gooseberries. There should be a preparatory thinning before the time of stoning, and a final thinning afterwards, because most plants, especially such as have overborne themselves, drop many fruit at that crisis. Finish the thinning with great regularity, leaving those retained at proper distances, three, four, or five on strong shoots, two or three on middling, and one or two on weaker shoots, and never leaving more than one Peach at the same eye. The fruit on weakly trees should be thinned more in proportion.

Renovating old decayed trees. Head down, and renew the soil from an old upland pasture, and if the bottom of the border is moist, or if the roots have gone more than two feet downwards, pave the bottom, or otherwise render it dry, and impervious to roots at the depth of twenty inches from the surface. This plan will be found almost universally successful in restoring sufficient vigor to resist insects, and produce abundance of fruit.

Protecting the blossoms. This may be done by various modes. Forsyth recommends old netting as the best covering. C. Harrison recommends, to protect the trees from the frost in the month of January by branches of broom; these are previously steeped in soapsuds mixed with one-third of urine for forty-eight hours, in order to clear them from insects; and when dry are disposed thinly over the whole tree, letting them remain on only until the trees begin to break into leaf. At the time of the blooming and setting of the fruit, he applies cold water in the following manner, viz: if upon visiting the trees before the sun is up in the morning, after a frosty night, he finds there is any appearance of frost on the bloom or young fruit, he waters the bloom or young fruit thoroughly with cold water from a garden-engine, and he affirms that even if the blossoms or young fruit are discolored, this operation recovers them. Dr. Noehden remarks, "that this operation of watering before sunrise,

in counteracting the frost, seems to produce its effect in a manner analogous to the application of cold water to a frozen joint or limb, which is injured by the sudden application of warmth." An acquaintance of mine informs me that he protects his blossoms by retardation; and the means used are, detaching the branches of the trees from the walls in autumn, and not refixing them till late in the spring, when the blossoms are about to expand. In addition to unfastening the trees, a wedge is put in behind the main stem to throw it forward, in order that the trees may receive as little protection from the wall as possible.

Ripening Peaches on leaflet branches. Wherever the part of the bearing branch which extends beyond the fruit is without foliage, the fruit itself rarely acquires maturity, and never its proper flavor and excellence. This is supposed to be owing to the want of the returning sap, which would have been furnished by the leaves; this seems to have been proved experimentally by inarching a small branch immediately above the fruit. The fruit in consequence acquired the highest degree of maturity and perfection.

Insects and diseases. The leaves of the Peach-tree are liable to the attacks of the acarus, its greatest enemy; and also to be devoured by the chermes, aphis, and even a much smaller insect, the thrips. These are to be kept under by the usual means of watering over the leaves, and fumigation with tobacco smoke. The honey-dew, mildew, gum, and canker, are chiefly to be kept under by regimen; dusting with sulphur has been found to destroy the mildew, but the only certain way of remedying it is by a renewal of the soil, which will commonly be found old mould, long in use, and too rich, and by abundance of air. We are informed that I. Kirk tried renewing the soil for fifty years, and always found it an effectual remedy.

The young wood of the Peach-tree is liable to be covered with black spots or blotches, which Kenment proved to be produced by over rich soil. The fruit, when ripe, is liable to the attacks of the wasp, the large fly, and especially the earwig, &c.; the first two

may be excluded by nets, or enticed by honied bottles, and the latter caught by the beetle-trap, reeds or bean-stalks laid in behind the leaves, and examined every morning.

Gathering. Gather one day or two before the fruit is to be used, and before it be quite ripe, laying it on clean paper, in a dry, airy part of the fruit-room.

Use of hot walls. The ripening of the Peach may be accelerated in the open air, when planted against a hot wall, by the application of gentle fires in cold moist weather, in August and September. This will ripen the fruit and wood; but no attempt should ever be made to accelerate the blossom early in spring, as without the protection of glass they are almost certain of being cut off.

Medical Properties and Uses. The fruit is known to be grateful and wholesome, seldom disagreeing with the stomach, unless this organ is not in a healthy condition, or the fruit has been eaten to excess, when effects similar to those of the other dulco-acid summer-fruits may be produced.

The flowers, including the calyx, as well as the corolla, are the parts of the Persica used for medicinal purposes; these have an agreeable but weak smell, and a bitterish taste. Boulduc observes, "that when distilled without addition by the heat of a water-bath, they yield one-sixth their weight, or more, of a whitish liquor, which communicates to a considerable quantity of other liquids a flavor like that of the kernels of fruits."

These flowers have a cathartic effect, and especially to children have been successfully given in the character of a vermifuge: for this purpose an infusion of a drachm of the flowers, dried, or half an ounce in their recent state, is the requisite dose. The leaves of the Persica are also found to possess an anthelmintic power, and from a great number of experiments appear to have been given with invariable success both to children and adults. However, as the leaves and flowers of the Persica manifest in some degree the quality of those of the laurocerasus, they ought to be used with caution.



Moss Rose.

NAT. ORDER.

Rosaceæ.

ROSA MUSCOSA. MOSS ROSE.

Class XII. Icosandria. *Order V.* Polygynia.

Gen. Char. *Calyx*, pitcher-shaped, five-cleft, fleshy, contracted at the neck. *Petals*, five. *Seeds*, many, hispid, fastened to the inner side of the calyx.

Spe. Char. *Fruit*, ovate, turgid, with the peduncles hispid. *Stem* and *Petioles*, prickly.

The *Rosa muscosa* agrees very much in character with the *Rosa centifolia.* The *peduncles* are bracteate; *leaflets* oblong or ovate, wrinkled; *disc* thickened, closing the throat; *sepals* compound. This division comprises the portion which has most particularly interested the lovers of flowers. It is probable that the earliest of which there are any records as being cultivated belongs to some portion of it; but to which particular species those of the Cyrene or Mount Pangæus are to be referred, is now too late to inquire.

The ottar of Roses, which is an important article of commerce, is either obtained from them indiscriminately, as in the manufactory at Florence, conducted by a convent of friars, or from some particular kind, as in India. It appears, from specimens brought from Chizapore, by Col. Hardwicke, that the Moss Rose is there exclusively used for obtaining the essential oil. The Persians also make use of a sort which Kœmpfer calls *Rosa shirazensis*, from its growing about Shiraz, in preference to others. It is, however, well known

that ottar of Roses from different countries is of various degrees of goodness, that from Turkey being usually the best. It is therefore probable that *Rosa muscosa* may be sometimes used either alone or mixed with other kinds, especially at Mogodor, where considerable quantities are procured, but of inferior quality. To the first three or four species of the section, nearly all the fine double Roses of the gardens are referable.

If there be any one genus of plants more universally admired than the others, it is that of the Rose—where is the poet that has not celebrated it? and where is the painter that has not made it an object of his imitative art? In the opinion of Miller, the Moss Rose, or Moss Province, as it is frequently called, is a perfect distinct species; Linnæus considers it as a variety only of the centifolia, as it is found in our nurseries in a double state only, and as we are ignorant of what country it is the produce, the decision of this matter must be left to future observation and inquiry.

Though it may not increase so fast by suckers, nor be increased so readily by layers, as the *centifolia*, there is no difficulty in propagating it either way: the latter mode is usually adopted. The Moss Rose is easily distinguished from all others by the moss that almost covers the flower-buds and some portions of the stem.

Medical Properties and Uses. See Vol. I. p. 6.



Blood-Root.

NAT. ORDER.

Papaveraceæ.

SANGUINARIA CANADENSIS.

Class XIII. Polyandria. *Order I.* Monogynia.

Gen. Char. *Sepals*, two, ovate, caduous. *Petals*, three to twelve. *Stamens*, twenty-four. *Stigmas*, bisulcate. *Capsules*, oblong, two-valved.

Spe. Char. *Leaf*, radical, kidney-shaped, lobed. *Flowers*, double or single, large or small.

This is a small perennial American herb, abounding in a blood-colored juice, with one *leaf* and one *scape* rising from each bud. Professor Barton describes the Blood-root as a highly valuable herb, and from whom we quote the following: "The *root* of *Puccoon* is perennial, and of no definite size. It varies in thickness, from a quarter to a half, or sometimes three-quarters of an inch in diameter; and in length from two to four inches. It is generally about the size and length of a finger; fleshy, round, and abruptly terminated; being for the most part tolerably straight in the middle, with a curvature at each end. It is commonly of the shape represented in the plate, though not unfrequently, particularly in the new plant, shorter, and contorted or bent upwards. Occasionally a number of roots are connected together, principally by no closer attachment than that produced by a fasciculation of the numerous fibres originating from the main body. The external color of the root is brownish, inclining to copper; but being cut, it appears of a red hue; and a bright orange-colored juice is abundantly discharged; the end always has the appearance of having been cut off by a dull instrument, or

broken in removing it from the ground; the *scape*, which is uniformly terminated by a single flower, proceeds from one end of the root, and rises perpendicularly to the height of six or eight inches. In the early part of the season, that is, about the last of March or first of April, it flowers much under this height; and not unfrequently the flowers are expanded at these periods, when the scape has just appeared above ground; the *leaf-stalks*, which are thicker than the scape, are long, and arise from the same part of the root. This has relation to a plant in the state of forwardness represented in the plate. In common, by the time the flower is expanded, the leaf-stalk is not more than half the length of the scape; and it then supports a small convoluted leaf, with its lower lobes embracing this part. Both the leaf-stalks and scape, which are encircled at their origin from the root by a common sheathe, are of an orange color, deepest towards their junction with the caudex, and becoming paler near the leaves and flowers, where it is blended with green. When broken or squeezed, they emit a colored liquor, like that of the root,—but paler. The stain made by this fluid on paper, is a faint yellow. When this plant first comes up, the young *leaf* is rolled round both scape and flower-bud; and not unfrequently the flower is opened immediately over the convoluted leaf; the under side of the leaf is glaucous, the *disc* pale yellowish green, and on both sides the orange-colored veins are very conspicuous.

In favorable situations the plant has often one or two expanded leaves, like that in the plate; and these are also of a pale green color on their upper surface, and glaucous or bluish-white underneath, interspersed on either side with numerous orange-colored veins. The whole plant becomes much increased in size after the flowering is passed about a month; frequently attaining at this period the height of fifteen inches, but commonly not exceeding twelve. The leaves are then enlarged to twice or thrice the size of that in the plate, are heart-shaped, and deeply lobed. The number of lobes is mostly five or seven, and their edges have many small

unequal indentations. On each lobe one large fibre of a bright yellow color may be seen, running from the leaf-stalks, and sending off many smaller ones; the *flowers* are white and spreading, and have two deciduous calyx leaves; the *calyx* is so exceedingly fugacious, that it is common for them to fall off before the flower is expanded; hence they are rarely seen; the *petals*, which for the most part are purely white, are often tinged on their under side, and sometimes on their upper, with a delicate rose-color; the *flower-bud* is generally faint rose-colored; the *petals* vary exceedingly, both in size and in number. I have in many flowers counted from seven to fourteen; the most common number is about eight; the *stamens* are numerous; the *anthers* are simple and orange-colored; the *filaments* are simple, shorter than the corolla, and of a yellow color; the *pistil* is of a reddish green; the *germens* oblong and compressed; *style* none; *stigma* thick, two-furrowed, with a stria the height of the stamens, and permanent; the *capsule*, or, as Wildenow designates it, the siliqua, is oblong, swelling in the middle, acute at both ends, and two-valved; the *seeds* are numerous, round and pointed.

This is a plant peculiar to North America. Its systematic name, as well as its English and German appellations, are expressive of the peculiar reddish, or rather orange-colored juice which pervades every part of it. It is one of the most beautiful and delicate vegetables of our country. It is particularly interesting from its flowering at a season when there is little or no general verdure, and scarcely any thing in bloom, except trees, the inconspicuous florescence of which does not render them in general very attractive. It is also one of the most abundant plants of our states, growing plentifully from Canada to Florida.

The tendency of Blood-root, or Puccoon, to multiply its petals in favorable situations, renders it likely that culture would readily produce a double variety; and, indeed, the variety *Sanguinaria major flore pleno*, by Dillenius, as quoted under the synonyma, proves that such a change has been effected in it. As these double

flowers are admired by the florists, the plant is worthy of being introduced into our gardens, where it thrives extremely well.

Propagation and Culture. In the wild state, *Sanguinaria canadensis* inhabits a rich, loose soil, on the declivity of hills, and the exposed borders of shady woods. Pursh says it generally delights in fertile soil. A large abundance of it is found in many parts of New Jersey, where the soil is sandy and almost inclining to arid.

In auspicious seasons, Blood-root flowers in the states of New-York, New Jersey and Pennsylvania in the last days of March; and even in the common weather of the spring months, it may always be found in bloom about the first of April. Dr. Thatcher has given the Indian name, as *Pauson.* After many inquiries I believe this to be incorrect, and a mere corruption of the true aboriginal name, *Puccoon,* as given at the head of this article. This being a dwarf plant, it should be planted near the front of the flower-border; it will thrive well in a light sandy loam or peat soil, and it is easily increased by dividing the roots or by seeds.

Chemical Analysis. From the chemical analysis of Blood-root, made by Dr. Downey, it appears that there is a gum, a resin, and a saponaceous or extractive matter in the root, and that the gum is in the greatest abundance. It results also from the same experiments, that the active principle of the plant chiefly resides in the gum and extractive matter, but especially in the former.

Medical Properties and Uses. This plant is emetic and purgative in large doses; and in smaller quantities is stimulant, diaphoretic and expectorant; but it is principally valued for its emetic power. It is a powerful medicine, and has produced dangerous effects when incautiously administered. Dr. Shœpf mentions the emetic and purgative virtue of the root. Fifteen or twenty grains of the pulverized root produce powerful emesis; but the medicine must be given in the form of pills, as the powder creates great irritation of the fauces. A decoction or extract will perhaps answer better. The root of this plant, when exhibited as an emetic, has been found to

dislodge worms from the stomach. This hint of the anthelmintic property of this part, may not, perhaps, be unworthy of notice, though other emetics have sometimes produced the same effect. Dr. Shœpf has also mentioned that a weak decoction of the root was used in gonorrhœa, against the bites of serpents, and in bilious diseases; that the juice was employed against warts, and that the powder of the root, in the dose of one drachm, was exhibited in jaundice. Dr. Dexter, of Cambridge, Mass., says that in some trials he made with the plant, it proved efficacious as a stimulant and diaphoretic in doses of one grain of the powdered root, or ten drops of the saturated tincture. Dr. Thatcher mentions the reputed efficacy of this root in removing jaundice, and says it is believed to be the chief ingredient in the quack medicine known by the name of *Rawson's bitters*. A spirituous tincture of the root is said to be frequently used in New England, in various diseases, as a tonic bitter." Prof. Barton, speaking further of the qualities of this root, says: "I prepared some of the tincture from the recent roots, last spring. It is intensely bitter, approaching, in its permanent impression on the tongue, to acerb. I have used this preparation of the plant in three cases, and with the manifest effect of increasing the appetite and tone of the stomach. It was used in the same way as wine bitters. I can readily believe that in this form it has done much good, at least as a prophylactic, in those low marshy grounds of the southern states, where the inhabitants are said to use it to guard them against intermittents, and what the country people call 'inward fevers.' The dose of the saturated tincture of the root is from thirty to eighty drops, twice a day, increasing or decreasing the number as circumstances may require. I have found twenty drops twice a day a good average dose.

A decoction of the root has been recommended in the treatment of old and indolent ulcers; and the powdered root applied a few times in some cases of ill-conditioned ulcers, with callous edges and an inchorous discharge, produced a healthy state of the sores. I

have also heard of the application of the powdered root to a fungous tumor within the nostril, with the effect of producing intumescence, and bringing away frequently small pieces of the fungus, which in the first instance impeded the progress of air through the nostril, and was supposed to be a polypus. A decoction of Blood-root has been employed with very good effect in that form of sore throat called by Dr. Darwin *peripneumonia trachealis*. The medicine proved emetic. From this case Dr. Barton believes that "it promises to be a useful medicine, particularly on the foundation of its emetic and expectorant effects, in cases of cynanche maligna, or ulcerous sore throat, in cynanche trachealis, or hives, and other similar affections. Its properties," continues the Doctor, "seem to be considerably allied to those of Seneca, Snake-root, which has been so beneficially employed in the same cases." Dr. Israel Allen, of Sterling, and others, have had recourse to this medicine as a substitute for digitalis, in coughs and pneumonic complaints; and on some occasions it is said that it proved as efficacious as Fox-glove, when administered with the same care; and it was found less debilitating than this medicine."

The leaves and the seeds of Blood-root are, according to Dr. Barton and Dr. Downey, evidently deleterious. The latter produce effects similar to those brought on by the seeds of Stramonium, or thorn-apple. The experiments of the last-named gentleman were made with the unripe seeds; and he says they exerted a very considerable influence over the pulse, and had a stupifying narcotic quality. The best time to collect this plant for medical purposes, is when the seeds are ripe, which is about the beginning of May.

Economical Uses. The juice of the root of this plant makes a fine dye of an orange color, and is used by the country people for staining flannels and woollen goods. The Indians paint themselves with it, and use it as a dye for their baskets and articles of ornament; hence one of its vulgar names, *Indian paint*. From the experiments made by Dr. Downey, with a view to find a suitable

mordant to fix his dye, it appears that the color of flannel and silk stained with the juice, could never be entirely washed out; that the sulphate of alumine, or alumine alone, and the murio-sulphate of tin, are tolerable good mordants for flannel, cotton, silk and linen. Murio-sulphate of tin was the only mordant that fixed the color on cotton and linen. I have heard that this plant was employed as a dye, in some of the woollen-cloth manufactories in Delaware. If success has been obtained in fixing the color permanently, there can be no doubt that the dye obtained from this root will become a highly-important article in domestic manufactures. It is said that in Maryland, the farriers give the root of *Sanguinaria* to horses, to induce sweating, and to promote the shedding of their old coats of hair.

NAT. ORDER.

Leguminosæ.

LUPINUS PERENNIS. MEXICAN LUPINE.

Class XVI. Monadelphia. *Order V.* Decandria.

Gen. Char. *Calyx*, bilabiate. *Corolla*, papilionaceous. *Stamens*, monadelphous. *Style*, filiform. *Stigma*, terminal, roundish, bearded.

Spe. Char. *Flowers*, alternate, pedicellate, bracteolate. Upper lip of the *Calyx*, somewhat emarginate, lower one entire. *Leaflets*, eight to nine, lanceolate. *Root*, creeping.

This is a very common plant in the state of New-York, in Long Island, and many parts of New Jersey and Pennsylvania, where we have seen it growing in great plenty on sandy banks and in woods. The *calyx* is profoundly bilabiate; *corolla* papilionaceous, the vexillum with reflexed sides, and the keel acuminated; *stamens* monadelphous, with the tube or sheath entire; five of the *anthers* are smaller, rounder and earlier, and the other five oblong and later; *style* filiform; *stigma* terminal, roundish and bearded; *legume* coriaceous, oblong, compressed, obliquely torulose; *cotyledons* thick, but converted into leaves at the time of germination; *leaflets* complicated before expansion, and while asleep or through the night; *stipules* adnate to the petioles; *peduncles* opposite the leaves or terminal; *flowers* alternate or verticellate, sessile, or pedicellate, disposed in racemes and spikes, with one *bractea* under each pedicel, and with two bracteas adhering laterally to the calyx, which are caduous or wanting.



Mexican Lupine

It is said by Pliny and other Latin writers, that this plant derived its name from *Lupus*, a wolf, on account of its being supposed to destroy the fertility of the soil; or rather as Virgil calls it, *lupines tristes lupini*, the bitterness of this plant, contracting the muscles, and giving a sorrowful appearance to the countenance.

There are recorded sixty-two different species of the *Lupinus*, all shrubs or flowers, and only valuable as a garden ornament. Most of the plants are annuals, but the present one is a perennial; therefore the term *perennis* will be strictly applicable to the present plant. One peculiar feature in this plant is that the roots strike very deep in the ground; even those belonging to a plant one year old I have seen to the depth of three and four feet: they also spread remarkably wide; hence the roots even of young plants are with difficulty taken up entire.

Propagation and Culture. Every species of *Lupine* are worth cultivating for the purpose of decorating flower-borders, as they are very ornamental when in flower; they thrive best in light soil, and are most easily increased by seeds. The shrubby kinds require to be protected in severe weather in winter by a glass covering, or by matting. If they are grown against a wall, they can be easily sheltered in winter. Cuttings of them root very readily.

Medical Properties and Uses. No account worthy of notice has ever been recorded of the medicinal virtues of this plant; and, indeed, all the species seem to be regarded as of no value in medicine.

NAT. ORDER.

Pomaceæ.

PYRUS BOLLWYLLERIANA. COMMON PEAR-TREE.

Class XII. Icosandria. *Order IV.* Pentagynia.

Gen. Char. *Calyx*, with an urceolate tube, and a five-lobed limb. *Petals*, roundish. *Styles*, usually five, rarely two or three. *Pome*, closed, five-celled. *Seeds*, two in each cell.

Spe. Char. *Leaves*, ovate. *Corymbs*, many-flowered. *Fruit*, turbinate, small, orange-yellow. *Flowers*, white.

The wild *Pear-tree*, from whence have originated (by cultivation) the various variety of fruits, together with the Wild Apple, or *Crab-tree*, are natives of this country, and belong to one family. The common Pear-tree rises from twenty to thirty-five feet in height, covered with a rough, gray, ash-colored bark; the *branches* are firm, thickly set, upright, and in the cultivated state unarmed; the *leaves* are simple, pinnate and terminal; *cymes*, many-flowered; *bracteas* subulate, deciduous.

The Pear-tree is called *poirier* in French, *birnbaum* in German, and *pero* in Italian. In its wild state, the Pear is a thorny tree, with upright branches, tending to a pyramidal form, in which it differs materially from the apple-tree. The twigs or spray hang down; the flowers in terminal villous corymbs, produced from wood of the preceding year, or from buds gradually formed on that of several years' growth, on the extremities of very short protruding shoots, technically spurs. It is found in a wild state in Britain, and abundantly in France and Germany, as well as in other parts of Europe, not excepting Russia, as far as latitude 51°, and nearly in every section



Common Pear-tree.

of the United States. It grows in almost any soil. The cultivated tree differs from the apple, not only in having a tendency to the pyramidal form, but also in being more apt to send out tap roots, in being as a seeding plant much longer in coming into bearing, and when on its own root, or grafted on a wild Pear stock, of being much longer lived. In a dry soil it will exist for centuries, and still keep its health, productiveness and vigor. The period at which the *Teinton Squash Pear* first sprang from seed, probably now cannot be ascertained; but I suspect from its present diseased and worn out state, that it existed at least as early as the beginning of the sixteenth century; for another kind, the *barland*, which was much cultivated in the early part of the seventeenth century, still retains a large share of health and vigor; and we are informed that the identical trees which supplied the inhabitants of Herefordshire in the seventeenth century with liquor, are likely to do the same for those of the nineteenth. The remarks on the history of the apple will apply almost without exception to the Pear. The Romans, in Pliny's time, possessed thirty-two sorts, and the fruit is still more valued than the apple, both in Italy and France.

Use. As a dessert fruit, the Pear is much esteemed, and generally preferred to the apple. It is also used for baking, compots, marmalade, &c. Dried in an oven, the fruit will keep a year or more, either with or without sirup. This mode of preparing the Pear is about as common in France as the making of apple-pies in this country. Bosc describes two methods of drying Pears for preservation, and adds that he has tried them after three years' keeping, and found them still very good. Perry, the *poire* of the French, is made from the fermented juice, in the manner of cider, and the best sorts are said by Withering to be little inferior to wine. The wood of the Pear-tree is light, smooth and compact, and is used by turners, and to make joiners' tools, and picture-frames to be dyed black. The leaves will produce a yellow dye, and may be used to give a green to blue cloths.

Criterion of a good Pear. Dessert Pears are characterized by a sugary aromatic juice, with the pulp soft and sub-liquid, or melting, as in the *beurres*, or *butter Pears*. Ritchen Pears should be large of size, with the flesh firm, neither breaking nor melting, and rather austere than sweet, as the *wardens*. Perry Pears may be either large or small, but the more austere the taste the better will be the liquor. Excellent perry was made from the wild Pear.

Varieties. Tusser, in 1573, in his list of fruits, mentions "*peeres* of all sorts." Parkinson enumerates sixty-four sorts; Mortimor, 1708, has many sorts, and Miller has selected eighty sorts, and describes them from Tournefort. In France, the varieties of the Pear are much more numerous than even the varieties of the apple. The catalogue of the Luxembourg contains one hundred and eighty-nine sorts. The catalogue published by the Horticultural society in the present year contains six hundred and seventy-seven, which, until it appeared, the nomenclature of Pears was in a very imperfect state. The new and superior sorts which have of late been added to this important class of fruits, are found to be most valuable. The greater part of them have been obtained from Belgium, and some of them have far exceeded the expectations generally formed of them on their first introduction, especially as regards their adaptation to this climate, in which many, instead of requiring the assistance of walls, as all the best old sorts do, produce abundantly and in great perfection on standards. A knowledge of the excellence of these new kinds has occasioned a great number of the old sorts, formerly reckoned very good, to be now marked as only second-rate. The sorts distinguished as being of the first-rate quality are still too numerous for any collection; the character of first-rate, as relates merely to quality, could not, however, be withheld from many which nevertheless will be found to deserve only secondary estimation, when their properties are attended to. In a collection so rich in good sorts, possessing also hardiness and abundant bearing, none ought to be cultivated for the table except those of the first excellence.

Propagation. The Pear may be propagated by layers or suckers, but easily by cuttings. These modes, however, are productive of very indifferent plants, and are justly rejected in favor of raising from seed, and grafting or budding.

From seed. This mode is adopted either for the purpose of obtaining new varieties, or for producing Pear-stocks; in the former case the same principles of selection or crossing are to be followed as in raising seedling apples, between which and the Pear-tree the chief difference is, that the latter requires a longer period, nearly double, to come into bearing.

In raising Pears for stocks,—The seeds from perry-makers are generally made use of, but the most proper are those from the wild Pears, as likely to produce plants more hardy and durable. There is, however, less difference between the Pear stocks, or those raised from the cultivated fruit and wild Pear, than there is between the free apple and crab-stocks. The seeds being procured, may be sown and afterwards treated as directed for seedling crab or apple-tree stocks.

By grafting and budding. The most common stocks on which the Pear is grafted, are the common Pear and the wild Pear: the Pear is, however, dwarfed and brought earlier into a bearing state by grafting or budding on the quince or white-thorn. The Pear will also succeed well on the white-beam, medlar, service or apple; but stocks of the wild Pear or quince are in most general use. Pears, on free stocks, grow most luxuriantly in good soil and on a dry bottom; those on wild Pear stocks grow less rapidly, but are deemed more durable, and will thrive on the poorest soil, if a hardy variety, and not over pruned. "On the quince," Miller observes, "breaking Pears are rendered gritty and stony; but the melting sorts are much improved; trees on these stocks may be planted in a moist soil with more success than those on the wild Pear stocks or thorns." On the thorn, Pears come very early into bearing, continue prolific, and in respect to soil will thrive well on a strong clay, which is unsuit-

able both to those on quinces or wild Pears; but it is supposed to have an unfavorable influence on the fruit, in rendering it smaller and hard; and the grafts or buds require to be inserted very low, that the moisture of the earth may tend to favor the swelling or enlargement of the diameter of the stock, which does not increase proportionably to, nor ever attains, the same size as the stem of the Pear. The free and wild Pear stocks are to be planted in nursery rows at the same distances as recommended for free or wild apples; and the quinces and thorn at the same distance as the Paradise stocks and creeper apples; in other respects the management is the same as for the apple.

Choice of plants. Our most experienced nurserymen take trees at one year from the graft, and thence to the sixth year or older. Others recommend to those who intend to plant Pear trees, instead of choosing young ones, to look out for the oldest that they can find in the nursery and with strong stems.

Soil and site. A dry deep loam is accounted the best soil for the Pear-tree, when the stock is of its own species; on a quince stock it wants a moist soil, without which it will not prosper. Gravel is a good sub-soil, where the incumbent mould is suitable. Cold clay is a bad sub-soil; to prevent fruit trees from striking into it, slates may be laid just under the roots. For wall trees the soil should be made good to the depth of two or three feet; for orchard trees eighteen inches may do. Pear-trees, on their own stocks, will thrive on land where apples will not even live; supposing the plants to be hardy varieties, little removed from wild Pears, and to have room to grow freely as standards. To the more choice of the early autumn and prime winter Pears, assign south-east or west walls. Some recommend a strong, deep, loamy soil, and a high wall, for training the better sorts.

Final planting. This is performed any time in mild weather, from October to March; standards are placed from twenty-five to forty feet apart every way; half standards from twenty to thirty

feet; and dwarf standards, in borders, from fifteen to twenty feet, from stem to stem. Wall and espalier plants are placed from fifteen to thirty feet, according as they may have been grafted or budded on Pear or quince stocks.

Mode of bearing. As in the apple-tree, the Pear does not produce blossoms on the former year's wood, as several other trees do. Its blossom-buds are formed upon spurs growing out of wood not younger than one year old, and, consequently, projecting spurs all over the tree must be left for that purpose. In some Pears, the fruit grows only on the inside of those branches which are exposed to the sun and air; in others it occupies every part of the tree.

Pruning and training standards. Permit these to extend on all sides freely. Several years may elapse before any cross-placed, very irregular or crowded branches, dead or worn-out bearers, require pruning, which give in winter or spring. Keep the head moderately open in the middle. "Pruning," Knight observes, "is not often wanted in the culture of the Pear-tree, which is rarely much encumbered with superfluous branches; but in some kinds, whose form of growth resembles the apple-tree, it will sometimes be found beneficial."

Heading down and pruning old Pear-trees. The method of pruning Pear-trees is very different from that practiced for apple-trees in general. The constant practice has been to have great spurs, nearly as large as a man's arm, standing out from the walls, from a foot to eighteen inches upwards. The constant cutting of these spurs brings on the canker, and the fruit produced is small, spotted and kernelly. Some gardeners' practice with such trees is to cut them down, and renew the soil at their roots. C. Harrison, and various other gardeners, adopt a mode of keeping only short spurs, by which much larger fruit is produced. According to this plan, each spur bears only once, when it is cut out, and succeeded by an embryo bud at its base. This bud at the end of the first season is no more than a leaf-bud, but at the end of the second summer it becomes a

blossom-bud, and bears the third summer. Some useful observations on the management of Pear-trees, in correspondence with the above, will be found in various parts of the Caledonian Horticultural Society's Memoirs.

Summer pruning. While the spray is young and soft, but not until the wood-shoots can be distinguished from spurs, rub off the foreright, the disorderly, spongy and superfluous shoots of the year, rather than let them grow woody, so as to require the knife. Retain some of the most promising, well-placed, lateral and terminal shoots, always keeping a leader to each main branch, where the space will permit. Leave the greater number on young branches not fully supplied with branches. Train in these at their full length all summer, in order to have a choice of young wood in the winter pruning. Occasionally, on old trees, or others where any considerable vacancy occurs, some principal contiguous shoot may be shortened in June to a few eyes, for a supply of several new shoots the same season.

Winter pruning. This may be performed any time from the beginning of November until the beginning of April. If on young trees or others a further increase of branches is necessary to fill up either the prescribed space or any casual vacuity, retain some principal shoots of last summer, to be trained for that purpose. As, however, many young shoots will have arisen on the wood branches and bearers, of which a great part are abundant and disorderly, but which have received some regulation in the summer pruning, we must now cut these out close to the mother branches, while we are preserving the best in the more open parts. Examine the parent branches, and if any are very irregular or defective in growth, either cut them out close, or prune them to some eligible lateral to supply the place; or if any branches be over extended, they may be pruned in to such a lateral, or to a good fruit-bud. Cut out the least regular of the two crowded, also any casually declined bearers, with decayed, cankery and dead wood. The retained supply of laterals and terminals should be laid in as much at length as the limits allow, in

order to furnish a more abundant quantity of fruit-buds. During both courses of pruning, be particularly careful to preserve all the orderly fruit-spurs, omitted at the sides and ends of the bearers; if, however, any large, rugged, projecting spurs, and wooden barren stumps or snags occur, cut them clean away close to the branches, which will render the bearers more productive of fruit-buds, and regular in appearance. As each tree is pruned, nail or tie the branches or shoots to the wall or trellis. If afterwards, in consequence of either pruning out improper or decayed wood, or of former insufficient training, there are any material vacuities or irregularities in the arrangement, unnail the misplaced and contiguous branches, and lay them in order.

An acquaintance of mine, by correspondence, informs me that his mode of training the Pear-tree is as follows:—"A young Pear-stock, which had two lateral branches upon each side, and was about six feet high, was planted against a wall early in the spring; and it was grafted in each of its lateral branches, two of which sprang out of the stem, about four feet from the ground, and the others at the summit in the following year. The shoots these grafts produced were about a foot long, were trained downwards, the undermost nearly perpendicular, and the uppermost just below the horizontal line, placing them at such distances that the leaves did not at all shade those of another. In the next year the same mode of training was continued, and the year following I obtained an abundant crop of fruit.

Insects, diseases, &c. The Pear-tree is liable to the attacks of the same insects as the apple-tree, and the fruit of the summer kinds, when ripe, is liable to be eaten by birds, wasps, &c., which must be kept off by shooting and hanging bottles of water and other preventives. For other points of culture, gathering and storing, see the apple.

Medical Properties and Uses. See Vol. I. p. 92—Pyrus spectabilis.

NAT. ORDER:

Scitamineæ.

STRELITZIA REGINÆ. LANA-LEAVED STRELITZIA.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, superior. *Corolla*, irregular and tubular. *Petals*, three.

Spe. Char. *Ovarium*, three-celled. *Fruit*, capsular. *Seeds*, round, without arillus.

This is a genus affording a plant of the herbaceous, exotic, perennial kind. The *calyx* is a universal spathe, terminating, one-leafed, channelled, acuminate, from spreading declining, many-flowered, involving the base of the flowers; partial *spathes* lanceolate, shorter than the flowers; *perianth* none; the *corolla* is irregular; *petals* three, lanceolate, acute, the lowest boat-shaped, the two upper bluntly keeled; *nectary* three-leaved; the two lower *leaflets* a little shorter than the petals, from a broad base awl-shaped, waved at the edges, folded together, including the genitals, towards the tip, behind augmented with a thick appendix, in form of half an arrow-head; the lowest *leaflet* short, ovate, compressed, keeled; the *stamens* have five filaments, filiform, placed on the receptacle; three in one leaflet of the nectary, two with the style enclosed in the other leaflet; *anthers* linear, erect, commonly longer than the filaments, included; the *pistil* is an inferior germ, oblong, obtusely three-cornered; *style* filiform, the length of the stamens; *stigmas* three, awl-shaped, higher than the petals, erect, at the beginning of flowering time glued together; the *pericarp* is a subcoriaceous capsule, oblong, obtuse, indistinctly three-cornered, three-celled, three-valved; the *seeds* are numerous, and adhering in a double row to the central receptacle.



Strelitzia, Lanu-leaved.

This plant has all its leaves radical, petioled, oblong, quite entire, with the margin at the bottom waved and curled, very smooth, glaucous beneath, coriaceous, a foot long, and permanent; the *petioles* are somewhat compressed, three feet long and more, about the thickness of the thumb, sheathing, erect and smooth; the *scape* is about the length and thickness of the petioles, erect, round, covered with alternate, remote, acuminate sheaths, which are green, with a purple margin; the general *spathe* is about a span long, green on the outside, purple at the edge; the partial spathes are whitish; the *petals* yellow, and about four inches long; the *nectary* blue: according to Curtise, the spathe contains about six or eight flowers, which, becoming vertical as they spring forth, form a kind of crest, which the glowing orange of the corolla, and fine azure of the nectary, render truly superb. This plant is a native of the Cape of Good Hope.

Propagation and Culture. These plants are raised from seeds, brought from their native situation, and sown in pots of good fine mould, placed in a hot bed to increase their early flowering; the plants, when of some growth, should be removed into separate pots, and be replaced in a tan-pit of the stove; afterwards when the plants are large, they should have plenty of mould, that the roots may be extended into the rotten tan, and in that way render them more strong and hardy for flowering; it may likewise sometimes be raised from the roots, when they are suffered to strike in the above manner; it has been remarked that it will thrive best in the dry stove and conservatory.

NAT. ORDER.

Hesperideæ.

PHILADELPHUS CORONARIUS. MOCK ORANGE.

Class XII. Icosandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, four or five-parted. *Corolla*, four or five-petalled. *Anthers*, erect, grooved.

Spe. Char. *Stalks*, numerous. *Leaves*, ovate-lanceolate. *Flowers*, come out from the side.

Philadelphus is a genus containing plants of the hardy, deciduous, flowering, shrubby kinds. The *calyx* is a one-leafed perianthium, four or five-parted, acuminate, permanent; the *corolla* has four or five roundish petals, which are flat, large and spreading; the *filaments* are twenty to twenty-five in number, awl-shaped, and about the length of the calyx; *anthers* erect, four-grooved; the *pistillum* is an inferior germ; *style* filiform, four or five-parted; *stigmas* simple; the *pericarpium* is an ovate capsule, acuminate at both ends, naked at the top by the calyx being barked, four or five-celled; *partitions* contrary; the *seeds* are numerous, oblong, small, decumbent, arilled, and fastened to the thickened edge of the partitions; *arils* club-shaped, acuminate, toothed at the base. This shrub also sends up a great number of *stalks*, which are very slender, from the root, seven or eight feet in height, having a gray bark, and putting forth several short branches from their sides; the *leaves* are either ovate or ovate-lanceolate; those upon the young shoots are three inches and a half long, and two broad in the middle, terminating in acute points, and having several indentures on their eyes; they are rough, and of a deep green on their upper side, and pale on their under;



Mock Orange.

they stand opposite, upon very short footstalks, and have the taste of fresh cucumbers: the *flowers* come out from the side and from the end of the branches, in loose bunches, each on a short pedicel; they are white, and have a strong scent, which at some distance resembles that of orange-flowers, but near it is too powerful for most persons; the flowers appear at the end of May, and continue a great part of June. It is said to be a native of the south of Europe.

There are two varieties—the dwarf *syringa*, or *Mock Orange*, just described, and the Carolina *syringa*, which rises with a stalk about sixteen feet high, shrubby, sending out slender branches from their sides, opposite to each other; the *leaves* are smooth, shaped like those of the pear-tree, entire, opposite, and on middling long footstalks; the *flowers* are produced at the ends of the branches; they are large but without smell; each has four white oval petals spreading open, and a large *calyx*, composed of four acute-pointed leaflets.

Propagation and Culture. These plants may be increased by suckers, layers and cuttings. The suckers are sent from the roots in great quantities. These should be taken from the old plants in the autumn, and placed in a nursery, to grow one or two years, till they have obtained sufficient strength, when they may be removed to the place where they are to remain. The layers may be placed down in the autumn, being made from the young twigs; these may be taken off in the following autumn, when well rooted, being planted out where they are to remain. The cutting of the young shoots may be planted in the autumn, in a shady situation, where they soon form plants. These plants are extremely hardy, and thrive in almost any soil or situation, but grow taller in light good ground than in that which is stiff.

NAT. ORDER.

Spiræaceæ.

SPIRÆ LOBATA. MEADOW SWEET.

Class XII. Icosandria. *Order V.* Pentagynia.

Gen. Char. *Calyx*, five-cleft, permanent. *Stamens*, ten to fifty, inserted in the torus, lining the calyx along with the petals. *Carpels*, solitary or several together, rare, connected at the base.—*Seeds*, two to six, fixed. *Embryo*, inverted.

Spe. Char. Unarmed *Shrubs*, or perennial *Herbs*, with alternate branches. *Leaves*, usually simple, but sometimes pinnately cut. *Flowers*, white or reddish, never yellow.

It is said that *Spiræa* took its name from *speirao*, to become spiral—in allusion to the fitness of the plants to be twisted into garlands. The genus contains plants of the shrubby and herbaceous kinds. The *calyx* is a one-leafed, five-cleft perianth, flat at the base, with acute segments, permanent; the *corolla* has five petals, inserted into the calyx, and oblong-rounded; the *stamens* have more than twenty filaments, filiform, shorter than the corolla, and inserted into the calyx; *anthers* roundish; the *pistillum* has five or more germs; *styles* as many, filiform, and about the length of the stamens; *stigmas* prominently headed; the *pericarpium* is an oblong capsule, acuminate, compressed, two-valved; the *seeds* are few, acuminate, small, fastened to the internal suture.

The following are among the species cultivated for ornamental purposes and hedges.

Spiræa salicifolia. Willow-leaved Spiræa.—This has stalks very tapering, rough towards the top, and covered with a reddish bark,



Meadow Sweet.

the leaves are about three inches long, and in the middle about one inch broad, bluntly serrate, and of a bright green color; in rich, moist ground, the stalks rise five or six feet high, but in moderate land from three to four; their whole height is one year's growth from the root, and are terminated by spikes of pale red or flesh-colored flowers. It flowers in June and July; and in moist seasons there are frequently young shoots from the root, which flower in autumn. It is a native of Siberia. There are several varieties of this species: the Flesh-colored Willow-leaved, the Alpine Willow-leaved, the Panicled Willow-leaved, and the Broad Willow-leaved Spiræa.

Spiræa tomentosa. Scarlet Spiræa.—This species has the stalks slender, and branching out near the ground, with a purple bark, covered with a gray mealy down: the leaves are smaller than the first, downy and veined on their under side, but of a bright green above; the branches are terminated by a thick raceme of flowers branched towards the bottom into small spikes; the flowers are very small, of a beautiful red color, appearing in July, August and September. It is a native of Pennsylvania.

Spiræa hypericifolia. Hypericum-leaved Spiræa.—This plant rises with several slender shrubby stalks, five or six feet in height, covered with a dark brown bark, and sending out small side branches the whole length; the leaves are small, wedge-shaped, having many punctures on their surface; the flowers are in small sessile umbels, each on a long slender pedicel, and white; they appear in May and June; and as the flowers are produced almost the whole length of the branches, it makes a very beautiful appearance during the time of flowering. It is a native of Italy and America.

Spiræa argentea. Silver-leaved Spiræa.—This species has striated erect branches, with short branchlets; the leaves are alternate, petioled, and silky-tomentose on both sides; the *racemes* are longer than the branchlets; the flowers are very small, with villose germs. It is a native of New Granada.

Spiræa chamædrifolia. Germander-leaved Spiræa.—This kind has an abundance of shoots, seldom six inches high, about the thickness of the finger, wand-like and branched; the wood is brittle; the bark of the shoots is a yellowish brown, with prominent dots scattered over its surface; the branches are alternate, commonly angular, with a testaceous bark somewhat striated, and in the younger branches covered with a tender ash-colored epidermis, which falls off; the annual shoots are grooved and pubescent; the leaves are alternate, soft, pubescent, with prostrate hairs, quite entire at the base, but generally deeply serrated from the middle to the end, where they are sharp; corymbs at the top of the stems frequent, many-flowered, terminating the annual alternate shoots; in gardens and in moist shady places these corymbs are more elongated; but in a ruder soil most of the peduncles are clustered at the top, like an umbel; the flowers are large, white, having a weak virose smell, and fugacious. It is a native of Siberia.

Spiræa crenata. Hawthorn-leaved Spiræa.—This species has several stems, scarcely six inches high, very much branched from the bottom; the branches are rod-like, round, with a testaceous bark cloven longitudinally; the leaves on the younger branches and annual shoots are alternate, attended with smaller ones in little bundles, hoary or glaucous, three-nerved, hard, varying in form and size; on the luxuriant shoots or branches sometimes ovate-acute, serulate from the tip beyond the middle, but most commonly oblong, bluntish, crenulate, or serrulate towards the tip, or sometimes quite entire; the corymbs at the ends of the annual shoots, very abundant, disposed along the branches on one side, in hemispherical clusters; the flowers are small, white and odorous. It is a native of Spain, and flowers here in April and May.

Spiræa trilobata. Three-lobed-leaved Spiræa.—This species has numerous stems, about the size of a large goose-quill, very much branched, upright, with a gray bark, which is more or less pale, and somewhat angular, with sharp streaks running down from the

branches; the branches and branchlets are alternate, those of the last year very smooth and yellow, leafy, and terminated by an umbel; the leaves are alternate, on very short petioles, smooth, glaucous, wide ovate, retuse, gash-trilobate; they vary even in the garden, with more or less frequent gashes, with the teeth obtuse or acute, in breadth; the umbels are very frequent at the ends of the annual branches; peduncles often more than thirty, besides a few axillary ones scattered below the umbel; flowers middle sized, white. This is an elegant shrub, and a native of Siberia.

Spiræa opulifolia. Currant-leaved Spiræa.—This species rises with many shrubby branching stalks, eight or ten feet high, in good ground, but generally five or six; they are covered with a loose brown bark, which falls off; the leaves are about the size and shape of those of the common currant-bush, ending in acute points, and serrate on their edges; the flowers are produced in roundish bunches at the end of the branches; they are white, with some spots of a pale red. It is a native of Canada and Virginia, and is mostly known in the nurseries by the name of Virginian Golden Rose.

Spiræa sorbifolia. Service-leaved Spiræa.—This kind rises with shrubby stalks like the first, but sends out horizontal branches, which are slender, and covered with a brown bark; the leaves are of a thin texture, and a bright green color on both sides, slightly and acutely serrate; the flowers are in terminating panicles, small and white. It is a native of Siberia, and produces its flowers in August.

Spiræa aruncas. Goat's-beard Spiræa.—This species has a perennial root; the stem is annual, and from three to four feet in height; the leaves are doubly pinnate, each having three or four pairs of oblong leaflets, terminated by an odd one; they are two inches long, and almost an inch broad, serrate, and ending in acute points; the flowers are disposed in long slender spikes, formed into loose terminating panicles, which are small, white, and of two sexes in the same spike. It is a native of Germany, and flowers in June and July.

Spiræa filipendula. Common Dropwort.—This plant has a perennial root, consisting of oval tubers or solid lumps, hanging from the main body by threads, which has given it the name it bears—*Filipendula* and Dropwort. These tubers enable the plant to resist drought, and render it very difficult to be eradicated or destroyed; the stem is erect, from a foot to a foot and a half in height, angular, smooth, leafy, and a little branched at the top; leaves alternate, interruptedly pinnate, serrate, and jagged, smooth, composed of several pairs of leaflets, all of which are set in uniform, or nearly corresponding in size; the terminating leaflet is three-lobed; a pair of roundish, united, indented stipules at the base of each leaf, embracing the stem; the flowers are many, and in a cymose, loose, erect panicle, cream-colored, often tipped with red, or red on the outside. It is an elegant plant, which grows very luxuriantly in gardens, and often with double flowers. It flowers early in July.

Spiræa ulmaria. Common Meadow Sweet.—This has a perennial fibrous root; stems erect, three or four feet high, angular and furrowed, tinged with red, leafy, and branched in the upper part; the leaves are interruptedly pinnate; leaflets very unequal in size, sharply serrate, clothed beneath with white down, the end one remarkably large and three-lobed; a pair of rounded serrate stipules are joined to the common leaf-stalk, and clasp the stem; the flowers are white, in a very large compound cyme, the side branches of which rise much above the central one; it perfumes the air with the sweet hawthorn-like odor of its plentiful blossoms from June till August. There are varieties of this species with double flowers, and with variegated leaves.

Spiræa trifoliata. Three-leaved Spiræa.—This, the last species which we think worthy of notice at this time, has a perennial root; the stalks are annual, about a foot high, and send out branches from the side the whole length; the leaves are for the most part trifoliate, but sometimes single or in pairs; they are about an inch and a half long, and half an inch broad, ending in acute points, sharply

Propagation and Culture. In all the shrubby sorts, this may be performed by suckers and layers, and cuttings. The suckers should be taken off in the autumn, and planted out where they are to remain, or in nursery-rows, to attain a fuller growth. The first sort requires to be cleared of these suckers every two years at most.

The layers should be put down in the autumn or in the spring, and may be taken off and planted as above, in the autumn or spring following: all the sorts may be raised in this way; but it is most proper for such sorts as do not send off suckers. The cuttings may be made from the shoots of the preceding summer, and be planted in a shady border early in autumn: when they have become well rooted they may be removed and managed as others; they succeed in this way with less difficulty than in either of the others.

All the herbaceous sorts may be increased by seeds, or parting the roots. The seeds may be sown in autumn or early in the spring; but the first is the better mode, on a bed of fine mould; when the plants appear they should be kept clear from weeds till the autumn, when they may be planted where they are to remain, or in the nursery for a year or two. The roots should be parted in the autumn or spring, when the stems decay, before they shoot out new ones, being planted immediately where they are to grow. The double-flowered and striped varieties can only be preserved in this way. They all afford variety and ornament in the shrubbery and other parts.

Medical Properties and Uses. The roots and leaves of this plant possess astringent properties, and have been used as a vulnerary, with considerable success: it has also been highly recommended for stone and gravel. By some writers it is recommended in leucorrhœa and hernia: they act also as a sudorific, and are sometimes given in eruptions and skin diseases.

NAT. ORDER.

Liliaceæ.

SCILLA CAMPANULATA. COMMON SQUILL.

Class VI. Hexandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, five-parted. *Corolla*, six-petalled, spreading and deciduous. *Filaments*, thread-like.

Spe. Char. *Flowers*, naked, with refracted bracteas.

The *root* is large, perennial, bulbous, coated, of a reddish hue, abounding with a tenacious juice, and furnished with many white fibres, which issue from its base; the *stem* is round, smooth, succulent, and rises two or three feet in height; the *leaves* are sword-shaped, radical, smooth, pointed, long, and of a deep green color; the *flowers* are whitish, produced in a long, close spike, upon purplish peduncles, and appear in April and May; the *bracteas* are linear, twisted, and deciduous; *calyx* none; the *corolla* is composed of six petals, which are ovate, patent, with a reddish mark in the middle; the *filaments* are six, tapering, shorter than the corolla, and furnished with oblong anthers, placed transversely; the *germen* is roundish, supporting a simple style about the length of the filaments, and furnished with a simple stigma; the *capsule* is oblong, smooth, marked with three furrows, and divided into three cells, which contain many roundish seeds.

This plant is a native of Spain, Sicily and Syria, growing in sandy situations on the sea coast, and hence its name. It was first cultivated in England about the year 1648. There are several varieties of the Squill, but there is not found to be any very essential difference in their sensible or medicinal properties, and the distinction seems merely



Common Squill.

to depend on the external color of the bulb, for when cut into, they are all of a whitish color internally, and may be used indiscriminately; still the red rooted variety is by some supposed to be more efficacious than the white, and is therefore generally preferred for medicinal use; it is to the taste very nauseous, intensely bitter, and acrimonious, but without any smell. Water, wine, proof spirit, and rectified spirit, extract the virtues both of the fresh and the dry root. Nothing rises in distillation with any of these menstrua, the entire bitterness and pungency of the Squill remaining concentrated in the inspissated extracts; the spirituous extract is in smaller quantity than the watery, and of a proportionably stronger, almost fiery taste.

Alkalines considerably abate both the bitterness and acrimony of the Squill; vegetable acids make little alterations in either, though the admixture of the acid taste renders that of the Squill more supportable. These acids extract its virtues equally with watery or spirituous menstrua.

Medical Properties and Uses. The root of the Squill, which appears to have been known as a medicine in the early ages of Greece, and has so well maintained its character ever since, as to be deservedly in great estimation, and of very frequent use at this time, seems to manifest a poisonous quality to several animals. In proof of this, we have the testimony of many ancient as well as modern writers. Its acrimony is so great that even if much handled it inflames the skin, and if given in large doses, and frequently repeated, it not only excites nausea, vertigo, and violent vomitings, but it has been known to produce strangury, bloody urine, hipercatharsis, cardialgia, convulsions, with fatal inflammation, and gangrene of the stomach and bowels.—But as many of the more active articles of the Materia Medica, by injudicious administration, becomes equally deleterious, these effects of the Scilla do not derogate from its medicinal virtues; on the contrary, we feel ourselves fully warranted in representing this drug, under proper management, and in certain cases and constitutions, to be a medicine of great practical utility, and real importance in the cure of many

obstinate diseases. Its effects, as stated by the most approved writers, are expectorant in small doses, and emetic and purgative in larger, and sometimes it acts as an emmenagogue. In dropsical cases it has long been esteemed the most certain and effectual diuretic with which we are acquainted; and in the asthmatic affections, or dyspepsia, occasioned by the lodgment of tenacious phlegm, it has been, and is still, the expectorant usually employed.

The Squill, especially in large doses, is apt to stimulate the stomach, and prove emetic; and it sometimes acts upon the intestines, and becomes purgative: but when these operations take place, the medicine is prevented from reaching the blood vessels and kidneys, and the patient is deprived of its diuretic effects; which are to be obtained by giving the Squill in smaller doses, repeated at more distant intervals, or by the joining of an opiate to this medicine, which was found by Dr. Cullen to answer the same purpose. The Dr. further observes, that from a continued repetition of the Squill, the dose may be gradually increased, and the intervals of its exhibition shortened; and when in this way the doses come to be tolerably large, the opiate may be most conveniently employed to direct the operation of the Squill more certainly to the kidneys. In cases of dropsy, that is when there is an infusion of water into the cavities, and but little terminating to the kidneys, we are of opinion that a little neutral salt accompanying the Squill may be of use.

Like digitalis, this medicine is rendered much more active in its operation, by combining it with some other articles of this class, and particularly by giving it in union with *Podophyllum peltatum*. This union I consider very important in cases where we wish to evacuate dropsical effusions. The Squill seems to increase diuresis by stimulating the kidneys to invigorated action, and the Podophyllum has a powerful tendency to promote absorption. By uniting these articles together, therefore, we obtain a remedy which enables us at once to excite the action of the absorbents and the kidneys, and thus, in the most effectual manner, promote the removal of dropsical collections.

Dr. Home, of Edinburgh, says that the diuretic effects of this medicine were greatly enhanced by uniting it with such other articles as are capable of promoting its emetic operations; or by giving it in sufficient doses to produce decided impressions on the stomach and bowels.—Directly the reverse of this was strenuously advocated by Dr. Cullen, who maintained that the diuretic effects of the Squill are generally much less conspicuous when it operates strongly on the stomach and intestines, than when it produces no sensible operation on these organs. The reason of this he conceived to be, that by such effects on the bowels, the medicine was prevented entering the blood vessels, and thereby reaching the kidneys. Whether we admit this explanation or not, the fact is, I believe, fully established, that not only this, but every other article belonging to this class of remedies, is less apt to produce diuresis when it either purges or vomits, than when no such effects are produced. Upon this subject Dr. Blackall observes, "it never operates so favorably as when it is given in the fullest quantity which the patient can bear without sickness." This corresponds with the experience of other late writers who speak of this remedy. It appears to be admitted generally, that this remedy is more apt to afford relief in hydrothorax than in any of the other varieties of dropsy. It is a well established fact, that all medicines tending to act upon the urinary organs, and thereby produce diuretic effects, does much towards mitigating this disease: and Squills is by far the most powerful of them. We find it very useful where there is an oppression of the chest, the urine is scanty, high-colored, full of sediment, and without serum. Its use is not, however, limited to this; I have seen it render service where the urine is partially coagulable. But in proportion as that symptom becomes more marked by its extreme constitutional characters, inflammation, and a weakness of the digestive organs, it fails in its effect, or is even injurious. It is recommended to be given at first in the dose of thirty drops of the vinegar or tincture of Squill, three times a day, and gradually increased to forty or fifty drops. When it does not act entirely as it could be wished, the addi-

tion of from three to six grains of Podophyllum peltatum given every night, is frequently followed by a great flow of urine at the same time that the salivary glands are effected.

I have myself uniformly obtained more advantage in this disease by these two articles in union with nitre, than from any other diuretic I have ever employed. Such a combination is particularly efficacious when it produces inflammation of the gums and the glands about the throat. The reason why the union of the above-mentioned articles are more apt to afford relief in hydrothorax than in any other varieties of dropsy, may be owing to a three-fold operation; it promotes absorption, excites the urinary discharge, and, by determining the circulation particularly to the glands of the mouth and throat, it causes a derivation from the exhalants of the pleura, and thereby lessens the dropsical exhalation. The exhalants of the cavity of the thorax would be more likely to be influenced by such an afflux to the glands of the mouth and throat, than those situated more remotely, and hence, perhaps, arises the more speedy relief which is commonly procured in hydrothorax by such a combination of remedies, than in ascites and anasarca. The expectorant operation of Squill, is also a circumstance which would seem to render it more suitable in dropsies of the chest than the other diuretics.

Dr. Ferias observes, that "in some habits the combination of tincture of Squills, with sirup of buckthorn, proves very powerfully diuretic." Its expectorant qualities are very obvious in asthmatic patients, and chronic affections of the chest, connected with a secretion of thick tough mucus, which is with great difficulty expectorated without the aid of an expectorant. As an emetic, it was once in general use, but is now much less frequently employed than formerly, and indeed where we simply wish to evacuate the contents of the stomach, it is too violent in its operation to be a desirable one; but in some affections of the chest and throat, especially in croup, it is certainly a desirable emetic, as it renders the expectoration of the mucus more easy. It is never administered as a purgative, and we only know that it possesses this

property by its being accidentally given in too large doses. The best way of exhibiting it is the dried bulb, in the form of powder, pill, or extract, &c., according to the way we may wish it to operate.

The most approved and desirable manner of preparing this root for use, is by cutting it transversely into thin slices, and then exposing it to a moderate warmth; for if the heat be too great, its sensible qualities become much impaired, and it is rendered almost inert; and when dried, its medicinal properties are gradually becoming dissipated, on which account it is necessary to have a fresh supply annually at least.

The dose of the powdered root is from five to ten grains, that of the tincture half a fluid ounce.

NAT. ORDER.

Malvaceæ.

LAVATERA TRIMESTRIS. ANNUAL LAVATERA.

Class XVI. Monadelphia. *Order VII.* Polyandria.

Gen. Char. *Calyx*, five-cleft, girded by a three or five-cleft involucre. *Leaflets*, joined, especially to the middle. *Carpels*, capsular, one-seeded, disposed into an orb aroundthe axis, which is variously dilated above the fruit.

Spe. Char. *Stem*, herbaceous, scabrous. *Leaves*, smoothish, roundish-cordate; upper ones lobed. *Pedicels*, solitary.

Lavatera is a genus of plants of the herbaceous, shrubby, perennial kinds. This species has an annual fibrous *root*, full of thick fibres, a foot in length, with innumerable other capillary fibres; the *stem* is round, rugged, five or six feet high, and very much branched; the *leaves* are on long petioles, very soft, tomentose, toothed, seven-angled, the angles of the upper one sharper; the *stipules* are lanceolate, cilate, bowing at the bottom, and then erect; the *flowers* are axillary, about four together, and placed on upright peduncles; the outer *calyx* is cup-shaped, with ovate segments; the inner one is a little longer, five-cornered above, with lanceolate segments; the *corolla* is twice the length of the calyx, pale blue, with oblong emarginate petals; the *germ* is orbicular-flatted and ten-grooved; the *stigmas* are ten in number; the *fruit* is smooth, within the calyx; the *capsules* are ten, round a column terminated by a hemisphere with a very small point at the top, disappearing when the fruit is ripe, and leaving a hole in the middle of the capsules, which then turn black. It is a native of the island of Candia, or Crete, and flowers in July. It sometimes possesses red, white, or purple flowers.



Annual Lavatera.

Lavatera Cretica. Cretan Lavatera. This has also an annual root, white with spreading beards; the stem is round, two feet high, branched, and the lower branches almost horizontal; the leaves are crenate-toothed, smooth, on long petioles, gradually narrowed towards the top; the stipulas are ovate-lanceolate, ciliate, bowed at the bottom, and then straight; the flowers are solitary, axillary, on peduncles shorter than the petiole; outer calyx semi-trifid, with keeled segments; inner one larger, with lanceolate segments, curbed at the edge; the corolla is large, spreading, bell-shaped, pale flesh color, with whitish lines; petals broader above, crenate, frequently rolled up, the edges of the claws of a deep purple; the germ very smooth; the style multified; the stigmas pale flesh-colored, longer than the tube, thirteen to eighteen in number; the fruit hemispherical, convex beneath, covered at the top with a circular, concave, smooth lid or peltate umbrella; there are about twenty capsules in a whorl; these are brown, closed all round and not opening, with a longitudinal raised line along the back, elegantly marked along the sides with flexuose streaks drawn from the circumference to the centre; the seeds are ferruginous. This is a native of the middle states of North America, and flowers from July till September.

There are twenty-eight species of the *Lavatera* described as being useful either medicinally, ornamentally, or for domestic purposes.

Propagation and Culture. The green-house and frame species will thrive well in a mixture of loam and peat, or any light soil, and cuttings from ripe wood planted in the same kind of soil under a hand-glass will root readily, or they may be raised from seeds, which generally ripen in abundance; they may be planted out against a south wall during summer, where many of them will survive the winter, if not severe, by being sheltered by a mat in frosty weather. The perennial herbaceous species will grow in any kind of soil, and may either be increased by dividing the plants at the roots or by seeds.—All the species are hardy, and well adapted for shrubberies.

NAT. ORDER.

Aroideæ.

CALLA ÆTHIOPICA. COMMON CALLA.

Class XX. Gynandria. *Order II.* Diandria.

Gen. Char. *Spathe*, one-leafed, cucullate. *Calyx* and *Corolla*, none. *Spadix*, naked above, bearing sessile anthers below the middle, and germens at the base. *Berry*, one-celled, many-seeded.

Spe. Char.—Stemless. *Leaves*, ternate. *Leaflets*, ovate, acuminate, very entire. *Spadix*, clavate. *Spathe*, ovate, convolute.

This genus contains plants of the herbaceous flowery perennial green-house kinds, Arum and its species. The *calyx* is a one-leafed spathe, ovate-cordate, acuminate, colored at the top, very large, spreading, permanent; the *spadix* finger-shaped, quite single, erect, covered with fructifications; *corolla* none; the *stamens* consist of some filaments intermixed with the germs the length of the pistils; they are permanent, compressed and truncate; the *anthers* are simple, truncate and sessile; the *pistillum* to each is a roundish obtuse germ; the *style* simple, very short; the *stigma* acute; the *pericarpium* contains as many berries as there are pistils, four-cornered, globular, pulpy, and one-celled; the *seeds* are numerous, six to twelve, solitary, cylindric, and obtuse at both ends; the *leaves*, which are heart-arrow-shaped, originate in clusters from the roots, are shining above, and are on long footstalks; the *flowers* are peculiarly graceful, at first of a greenish tinge, afterwards changing to the most perfect white; the *stamens* are above, the pistils below, set so closely together as not easily to be distinguished.

The Ethiopian or Common Calla, is a well-known green-house



Common Calla

plant, now very generally to be met with in little domestic selections. The whole family of these plants are natives of tropical countries, where they are found abundantly, but of temperate climates rarely, not extending in Europe further north than 64 ° north latitude, in the form of *Callas,* which inhabit the muddy, frozen marshes of South Lapland. In cold or temperate climates they are usually herbaceous, while in tropical countries they are often aborescent and of considerable size, frequently clinging to trees by means of their ærial roots, which they protrude in abundance. In America their principal station is on the submontane region between 1200 and 3600 feet of elevation, where the climate is temperate, and the rains abundant. In the Andes, ***Pothos pedatus*** and ***Pothos quinquenervius,*** two of the species, grow on a height of 8400 feet.

Propagation and Culture. This plant is readily increased by offsets from the root, which should be separated in the autumn, and planted out singly in pots of light earth, where they will grow and become full plants the following year. The plants may be kept in the open air during the summer, but during the winter they should have the protection of the green-house or a garden frame. These plants, from the singularity of their growth, and their being constantly furnished with leaves, have an agreeable effect, and produce much variety among other potted plants.

Medical Properties and Uses. A principle of acridity generally pervades this whole tribe, and exists in so high a degree in some of them, as to render them dangerous poisons. The most remarkable is the *Caladium seguinum,* one of its species, and a native of the West Indies and South America, growing to the height of a man: this plant has the power when chewed of swelling the tongue and destroying the power of speech. Dr. Hooker relates an account of a gardener who incautiously bit a piece of the dumb cane, when his tongue swelled to such a degree that he could not move it; he became utterly incapable of speaking, and was confined to the house for some days in the utmost excruciating torments.

NAT. ORDER.

Gesneriaceæ.

AMPHICOME ARGUTA. SHARP-LEAVED AMPHICOME.

Class XIV. Didynamia. *Order II.* Angiospermia.

Gen. Char. *Calyx*, tubular. *Corolla*, somewhat tubular. *Limb*, five-lobed, which are short.

Spe. Char. *Capsules*, long, slender, two-valved. *Seeds*, oblong and rough. *Cotyledons*, foliaceous.

This shrub rises to the height of about three feet, sending off a large number of tough, woody branches; the *calyx* is tubular, pentagonal, angles stiffer than the membranous ciliated sides, five-toothed; teeth subulate, slightly hairy; *corolla* tubular near the base, ventricose above; *limb* five-lobed; *lobes* short, rounded, ciliated, imbricate in æstivation; *stamens* four, didynamous, with the rudiment of a fifth; *cells* of the anthers converging, each furnished about its middle with a small tail-like process; *filaments* terminated above in a broad membranous process; *stigma* bilamellate; *capsule* long, slender, silique-formed, two-valved, but only opening on one side, dissepiment free, opposite the valves, bearing on both sides along the margins suspended seeds; *seeds* oblong, rough, slightly winged at both ends, and terminated in a branch of much divided coma of fine hairs, exalbuminous; *embryo*, straight, almond-shaped, radicle above; *cotyledons* foliaceous; *corollas* red. This is a native of Himalaya.

Propagation and Culture. This is a beautiful genus, like the rest of the order. A light rich earth, vegetable mould, or a mixture of loam, sand and peat is good soil for the species, and cuttings strike root readily in peat.



Amphicome, Sharp-leaved.



Common Comfrey.

NAT. ORDER.

Borragineæ.

SYMPHYTUM ORIENTALE. COMMON COMFREY.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, five-parted. *Corolla*, cylindrically campanulate; *Throat*, furnished with five subulate, vaulted processes, which connive into a cone. *Nuts*, four, one-celled, ovate, fixed to the bottom of the calyx, imperforated at the base.

Spe. Char. *Stem*, branched, hairy. *Leaves*, ovate-oblong, acuminated, petioled, hairy above, and villous beneath; upper ones narrowed at the base: floral ones opposite, sessile. *Calyx*, five-cleft, tubular at the base. *Segments*, of the corolla, ovate, acute.

The *root* is perennial, large, branched, on the outside blackish, and within whitish; the *stalk* is about two feet high; erect, branched, somewhat angular, and covered with short ridged hairs; the *leaves* are large, alternate, and those below stand upon footstalks, those above sessile, decurrent, ovate, pointed, entire, rough, and fringed with short hairs; the *flowers* are tubular, of a yellowish white, and placed in spikes, which turn inward in a spiral manner; the *calyx* is divided into five segments, which are rough, erect, and pointed; the *corolla* is funnel-shaped, consisting of a short thick tube, and a limb slightly cut at the edges into five short obtuse reflexed segments; the mouth of the tube closed by five narrow-pointed nectarious teeth; the *filaments* are five, short, and terminated by yellow erect bifid anthers; the *germen* is divided into four parts; the *style* is tapering, longer than the corolla, and furnished with a small blunt stigma; the *seeds* are four, angular, blackish, shining, and lodged in the bottom of the calyx. This is a com-

mon garden plant cultivated both in America and England, and is often found growing by the side of old ditches. It flowers from June till September.

Propagation and Culture. All the species of Comfrey are extremely hardy, and will grow in any soil and situation; some are very handsome border flowers, and are well fitted for woods or shrubberies, as they will grow under the shade of trees and shrubs; they are easily increased by dividing the roots in the spring, or by seeds, but the former mode is preferable.

Medical Properties and Uses. The root of Comfrey, though rarely used, promises all the advantages to be derived from that of marshmallow: according to recent investigations we find, that the dried root, boiled in water, renders a large proportion of the fluid slimy; and the decoctions inspissated, yield a strong flavorless mucilage, similar to that obtained from althæa, but somewhat stronger-bodied, or more tenacious, and in considerable larger quantities, amounting to about three-fourths the weight of the Comfrey. Hence it is inferred that the consolida is rather superior to the althæa in many cases where that root is employed; the mucilaginous matter being in both roots the only medicinal principle. Therefore, as the root of this plant is easily obtained, it may be conveniently substituted for that of althæa in all the compositions in which the latter is officinally directed or extemporaneously, for the general purposes of an emollient and demulcent. This opinion seems also to have the authority of Dr. Cullen, who says,—"While mucilaginous matters are retained in our list of medicines, I do not perceive why the colleges have entirely omitted the *Symphytum*, for it may be of great service in diarrhœas and dysenteries."

NAT. ORDER

Lobeliaceæ.

LOBELIA PUBERULA. BLUE DOWNY LOBELIA.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, adnate to the ovarium. *Limb*, five-parted. *Corolla*, irregular, tubular, tube cleft. The two *Segments* on the upper lip, linear-lanceolate. *Filaments*, combined above. *Anthers*, cohering, bearded. *Capsule*, oval, two-celled, two-valved.

Spe. Char. *Leaves*, oblong, obtuse, repandly serrulated. *Flowers*, almost sessile, forming a spike. *Calyx*, downy. Calycine *Segments*, erect, lanceolate-subulate, entire. *Stamens*, inclosed.

The *root* is perennial; the *stem* erect, simple, two to three feet high, angled, very slightly downy; *leaves*, alternate, remote, three to four inches long, oblong or elliptical-lanceolate, sessile, dentato-serrate, in our specimens nearly glabrous, gradually smaller upwards; the radicle ones subspathulate; the *spike* is from eight to ten inches and sometimes even a foot long, slender; the *flowers* are placed upon short pedicels, spreading, bracteated; *bracteas* lanceolate, wavy, with glandular serratures; the *calyx-segments* are almost as long as the tube of the corolla, erect, lanceolate-subulate, entire, edged with red, and the sinuses reflexed; the *corolla* is of a bright purplish-blue, divided almost to the base into two portions; the upper one linear, bifid, the segments acute reflexed, the lower broad and reflexed at the extremity, three-lobed, with two oval, white, protuberant spots, the lobes ovate; *stamens* included in the corolla.

This is a highly interesting and valuable addition to the Materia

Medica, and was first described and introduced by Mr. Drummond, of Jacksonville, in Louisiana, of which place it is a native. The species appears, indeed, to be but little known, except to our American botanists, and is probably confined to the southern states. Its nearest affinity is with *Lobelia siphilitica*, but its spike is less dense and vastly more elongated, its flowers smaller, of a brighter color, deeply barpitite, the upper lip bifid, the segments much reflexed, not split down so far that the stamens are excluded as in the last-named species.

Medical Properties and Uses. This species of Lobelia possesses properties very similar to the L. siphilitica, and may be used for the same purposes. Its active principle is highly volatile, thence by decoction the medicinal qualities pass off. The best method for preparing it for use is by tincture, one ounce of the dried leaves and flowerbuds to one quart of diluted alcohol. This may be given in doses of one to three drachms, three times a day. It is very diffusive, acting upon the whole system at once, causing great perspiration, and lassitude of feeling, with some very unpleasant feelings. It is but very little used in practice, except by a few empirics, who fancy it a certain remedy for cancer, for the cure of which it has become very celebrated. For this purpose it is taken internally as directed above, and applied externally as a wash, repeated several times a day.



1. Sharp-flowered Lobelia.

2. Blue Downy Lobelia

NAT. ORDER.

Lobeliaceæ.

LOBELIA MUCRONATA. SHARP-FLOWERED LOBELIA.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, superior, five-toothed and five-parted. *Corolla*, monopetalous, irregular. *Stamens*, five, inserted into the calyx. *Anthers*, cohering. *Pollen*, oval.

Spe. Char. *Leaves*, petiolate, ovate. *Stem*, erect, branched, angular, hairy.

This peculiar and rare plant is a native of Virginia, and was first brought into notice by some of the English botanists. The *stem* is annual, upright, branched, hairy, and rises from two to three feet in height; the *leaves* stand upon short footstalks, which are placed upon the branches; they are deeply serrated, lanceolate, quite entire, covered with a down, and are of a dark green color; the *corolla* is monopetalous, irregular, inserted in the calyx, five-lobed, or deeply five-cleft; *stamens* five, inserted in the calyx alternately with the lobes of the corollas; *anthers* cohering: *poll* oval; *ovarium* inferior, with from one to three cells, but usually of two cells; *ovula* very numerous, attached to the axis or parietes of the fruit; *style* simple; *stigma* usually two-lobed, surrounded by a cup-like fringe; *fruit* capsular, three-celled, many-seeded, dehiscing at the apex; *seeds* attached to the axis or parietes of the fruit; *embryo* straight, in the axis of the fleshy albumen, with the radicle pointing to the hylum; *flowers* terminal.

The plants contained in this order have all been recorded dangerous or suspicious, in consequence of the acridity of their milk.—*Tupa Feuelli* yields a dangerous poison in Chili. The most active ar-

ticle of the Materia Medica of this country is allowed to be the *Lobelia inflata*, of which a description has already been given.

Father Plumier dedicated a genus of plants to Mathias de Lobel, or de l'Obel, author of a history of plants in 1576. The plant to which he originally applied the name of Lobelia, is now the *Scævola* of Linnæus. When this botanist was first convinced by Jacquin that under the name of Lobelia a vast number of plants, generically distinct from the original plant, were confounded with it, and that these plants were better known than the true Lobelia, by that name, he judged it proper to correct the error by retaining his name for them, and giving a new one to the genus of Plumier. This is the origin of the term Lobelia for the genus as it now stands.

Medical Properties and Uses. This plant possesses properties similar to that of the *inflata*, and in some of the southern states is used for the same purpose. The present species, however, possesses emetic, sudorific, and powerful expectorant qualities, but is chiefly remarkable for the first of these operations on the system. When given with a view to empty the stomach, it operates speedily and with great power, producing, however, great relaxation, debility and perspiration. Like other active emetics, it sometimes operates on the bowels; but its cathartic effect is seldom observable unconnected with its emetic operation. Prof. Bigelow, speaking of the qualifications of Lobelia, says, "I have not, in various trials with the plant, found it in any instance to affect the alimentary canal, as a primary seat of its operation; yet it is said by some that large doses operate in this way, without producing emesis. It does not appear to be possessed of any particular diuretic property, as was supposed by the late Prof. Barton, would be found to be the case."

The first notice found in print of the medical virtues of Lobelia, is simply a brief remark by Shœpf, that the root is astringent, and used in apthalmia. He seems to have had little knowledge on the subject, and from the manner in which the plant is mentioned by him, it may reasonably be suspected that a vague rumor only of its medical pro-

perties had reached him. The next accounts we have of it as a medicine, are by the Rev. D. Cutler, and Prof. Barton. The latter does not speak from experience, but remarks that it has been found useful in leucorrhœa; and that it will probably be found diuretic. He is altogether silent respecting its emetic power, though he seems to have suspected that this was a near kin to the species of Lobelia called in New England emetic weed. Since the accounts of these gentlemen were published, the Lobelia has gained admittance in the dispensatories; and Dr. Thatcher has given a long and satisfactory account of its virtues.

Every portion of this species of plant is endued with the same acrid, pungent, and finally nauseating taste. On chewing the root, the leaves, the stem, or the capsules, the first impression on the palate is not very decided; but on continuing the chewing, a sense of heat or biting is perceived on the back part of the tongue and in the fauces. At this time the taste of the plant is similar to that of tobacco, seneka or tartar-emetic; but if the mastication be persevered in, slight giddiness and increase of saliva come on, and if the quantity of the article in the mouth be sufficient, and is swallowed, nausea and excessive vomiting supervene, succeeded by great relaxation of the muscles, perspiration, and prostration of strength. One or two capsules, in the fresh state, will produce full vomiting in most persons. From this account, which is faithfully given by those who have taken it, as well as in part from my own feelings, it is evident that it is very stimulating to the mouth and first passages. This, together with its subsequent effects when taken extensively, would indicate that it is considerably narcotic. It is manifest also from these effects that the plant is sufficiently deleterious to create dangerous consequences to the system, if not administered with some caution." Strange and infatuated ideas have been advanced in regard to the poisonous qualities of a few of the most valuable and desirable of this species of plants, especially the *Lobelia inflata*. Prof. Bigelow, in his Materia Medica of this country, has given a very lengthy statement of what he has heard some one

say in regard to the poisonous properties of this plant; he remarks, "that not only horses and cattle have been supposed to be killed by eating it, but a remarkable instance of its deleterious effect on the system, is related in the report of a trial for murder of a notorious empiric in Massachusetts, who used this Lobelia to a pernicious extent as a nostrum. This daring and ignorant man is said to have usually prescribed it, and frequently with impunity, in the dose of a common teaspoonful of the powdered seeds or leaves, and often repeated. If the medicine does not operate as an emetic, or evacuate the bowels powerfully, it frequently destroys life, and sometimes in the short space of four or five hours. The testimony of Dr. Drury, of Marblehead, and the Rev. Dr. Cutler, have brought the Lobelia into notice for the cure and relief of asthma. Induced by their accounts, and the obvious expectorant effects of the plant, I administered it to a domestic in my family, who was distressingly affected with spasmodic asthma.

This woman was of a slender form, and of a narrow, depressed thorax; and for years past has been subject to this complaint. During one of her paroxyms, I directed her to take a teaspoonful of the brandy tincture every two hours. After taking the second spoonful, she was immediately relieved. In a subsequent attack, the experiment was repeated, increasing the dose to a teaspoonful every hour, and with the same effect; the patient declaring that she never found such immediate and entire relief from any of the numerous medicines she had previously taken for this complaint. She complained of dizziness, nausea, and some debility, and after taking the second spoonful, told me that she suspected the medicine administered was tobacco." Thus we have the accounts of one who professed to be a teacher in medicine, and who tells us distinctly that, from the accounts given him by others, and the effects of the herb, witnessed by himself, he is fully persuaded that the Lobelia possesses powerful narcotic and deadly poisonous properties, that it is highly dangerous, almost under any circumstances, as a medicine. This is similar to the accounts of other writers on the poisonous qualities of this plant, and this is the general

prevailing opinion throughout the country, that this herb is poisonous and dangerous—*corrosive-sublimate, mercury, arsenic, digitalis, fox-glove,* or any other poison is swallowed without any hesitation; but speak of *Lobelia,* and you frighten your patient almost out of his senses. From well authenticated facts, and the testimony of nearly a thousand physicians, we are able to prove clearly and satisfactorily, that the Lobelia possesses none of those deleterious properties which have been ascribed to it. I have myself made use of the seeds and leaves of this plant as an emetic, and have universally, on all occasions, found it the most desirable of all emetics. I consider it safe in all stages of disease, properly administered, and under any circumstances where an emetic is desired. It does not possess in the slightest degree any poisonous or deleterious properties. I have administered it hundreds of cases to the amount of ten times the quantity that Prof. Bigelow says will destroy life, and have never experienced the least indications that it is capable of producing any injury properly given, more than our most harmless medicine, and I therefore speak with confidence, and recommend it as the most safe emetic which can be administered.

In cases of hydrophobia, a strong decoction of the seeds of Lobelia combined with Sceutilaria laterifolia, has been given with marked success, and so far as our knowledge extends, it may be considered as one of the best remedies in the treatment of that distressing complaint. As an antispasmodic, in cramp, convulsions, locked-jaw, &c., no remedy has ever yet come to our knowledge, possessing so valuable properties. Dr. T. W. Sweet, of this city, a gentleman of the highest respectability, informs me that he has made constant use of the Lobelia in his practice, and for mildness and certainty of its operation, activity and diffusiveness of its influence, he considers it as the most valuable of any emetic known, and ranks it first in that class of medicines in the Materia Medica: he also informs me of a case now under treatment, of a lady about fifty-five years of age, who has received the seventh shock of the palsy, attended with locked-jaw: he being immediately sent for, administered the concentrated tincture in the dose

of only seven drops, when the muscles began to relax, the saliva flowed freely, and in fifteen minutes the patient was able to talk freely; and he continued to give it in small broken doses, until the paralytic symptoms were entirely subsided.

From its speedy operation as an emetic, and its stimulating effects on the mouth and fauces, beneficial results may always be expected from its use in croup and whooping cough. In croup it may be resorted to with confidence, and generally with success. All who have had occasion to use the common antimonial and other emetics in croup, have seen cause to lament their occasional want of activity; and the plant in question really seems well entitled to the notice of the medical profession, as an emetic, antispasmodic and expectorant in that complaint.

This medicine may be given by injection, for croup, especially when the throat is much clogged, or that the medicine cannot be administered without difficulty; its effects are equally certain as an emetic, and it will immediately arrest the disease.

The plant should be gathered in the months of August and September, while in flower at the top of the branches, and full of the inflated capsules below. The whole plant should then be carefully dried for use, pulverized or made into tincture—that made from the recent plant is much more active than that made from the dried leaves and pods. From five to ten, and from that to twenty grains of the powdered leaves, will produce emesis in an adult; but, as it acts speedily, the dose should be small, and repeated every five or ten minutes, until it operates.



Blood-colored Cinquefoil.

NAT. ORDER.

Rosaceæ.

POTENTILLA ATRO-SANGUINEA. BLOOD-COLORED CINQUEFOIL.

Class XII. Icosandria. *Order V.* Polygynia.

Gen. Char. *Calyx*, ten-cleft. *Petals*, five. *Seeds*, roundish, naked, fastened to a small juiceless receptacle.

Spe. Char. *Leaves*, interruptedly pinnate, serrate, silky underneath. *Stem*, upright. *Peduncles*, one-flowered.

This beautiful plant rises to the height of about three and a half feet: the *stem* is erect, round, hairy, branched, and rather pilose; the *leaves* interruptedly pinnate, clothed with hoary tomentum; large *leaflets* oblong, truncate, deeply serrated, smaller ones quite entire, about the size of the segments of the larger ones; *stipules* lanceolate, usually entire, but sometimes with a few teeth; *petals* obcordate, a little longer than the calyx. This plant is a native of North America, the southern part of Europe, and is found in considerable quantities in Siberia. It flowers from July till September.

Perhaps no plant, bearing the open air in our climate, produces flowers of a richer hue than the present, which is an hybrid, and very much resembling the *Potentilla nepalensis*, but far exceeding it in both beauty and size. It is perfectly hardy, braving the severest winters of this country with impunity.

Propagation and Culture. All the species of Potentilla are of easy cultivation, and most of them quite handsome when in flower.—They will grow in any common garden soil, and are easily increased by dividing the plants or by seed. The shrubby kinds are very pro-

per for the front of shrubberies, and they propagate freely by cuttings planted in the autumn in a sheltered situation.

Medical Properties and Uses. The roots of this plant possess properties agreeing with those of the *Potentilla reptans*. They have a styptic, bitterish, gastic taste, and give out their astringent matter both to water and spirit. From history, we learn that in ancient times this plant was held in high estimation as a medicine, and was afterwards used by Hippocrates and Dioscorides, and by the former particularly recommended for the cure of intermittents. And later writers tell us that the middle classes of inhabitants still employ them with this intention.

The medicinal quality of Cinquefoil is confined to the external or cortical part of the root, and depends merely upon its astringent effects; it has therefore been chiefly prescribed internally in diarrhœas and other fluxes, and externally in gargles and astringent lotions; but as its efficacy is much inferior to many other plants of this class, the Cinquefoil is now rarely used. In large doses, however, it, may be found no bad substitute for some other astringent.

Both the root and the herb is used in dysentery and fluxes. The herb may be used as tea, and the root in decoction; an ounce of which may be boiled in a pint and a half of water, to a pint: the dose of this will be half a wine-glass three times a day. The root finely powdered has of late been used in connection with *Sanguinaria canadensis*, as a snuff for catarrhal affections.



Sabines' Strobilanthes.

NAT. ORDER.

Acanthaceæ.

STROBILANTHES SABINIANA. SABINES STROBILANTHES.

Class XIV. Didynamia. *Order II.* Angiospermia.

Gen. Char. *Calyx*, five-parted. *Corolla*, wheel-shaped. *Anthers*, erect, located in clusters. *Capsule*, medium transparent.

Spe. Char.—Herbaceous plants. *Stem*, upright, branching. *Flowers*, in terminal spikes. *Leaves*, lanceolate, entire.

The *stem* is from two to three feet high, shrubby below, and much branched; the *branches* are erect, glabrous, and the younger ones quadrangular; the *leaves* are opposite, unequal, oval, much acuminated, oblique, obscurely crenato-serrate, and tapering at the base into a winged petiole, which is often of a fine purple beneath; *nerves* oblique, united by reticulated nervelets, slightly prominent above, much so below; *spikes* axillary and terminal; *bracteas* imbricated, in four rows, broadly ovate or rounded, colored, somewhat spreading, crenate below, clothed with glandular down; *calyx* in five deep-colored, spathulate segments; *corolla* funnel-shaped, the lower part of the tube yellow and much curved, the rest bright bluish purple, pitted and reticulated; the *limb* is composed of five nearly equal rounded lobes; *filaments* declined, hairy at the base on one side, the two longer ones reaching a little beyond the mouth; *style* rather longer than the longest stamens.

This is a most beautiful hot-house plant, a native of Nepal, from whence it was first introduced into the British gardens by Dr. Wallich, who named it in compliment to Joseph Sabine, Esq., to whom Horticulture, no less than Natural History in general, is most deeply indebted. Its flowering season with us, in the cultivated state, is the latter

part of winter, when several of the numerous purple spikes have a succession of flowers; two on each, and never more than that number being open at the same time.

Propagation and Culture. This genus contains plants of no great beauty, and are hardly worth cultivating as an ornament; their medicinal qualities also are very limited, and of but little value; they are only cultivated as a rare plant in some of the largest and most extensive botanical gardens. The annual species should be treated similar to other plants of the like character, and of the hot-house kind. The shrubby and perennial and herbaceous kinds, like other stove plants. They are all quite easily increased by seeds.

Medical Properties and Uses. This plant is said to possess considerable astringent properties, and was used at one time for tanning, and in medicine for bleeding at the lungs, dysenteria, and other complaints of the bowels. A strong decoction was used for bathing in piles, sores, ulcers, sore eyes, and internally for cankered throat, and as a gargle for other purposes.



Dark-flowered Calliopsis.

NAT. ORDER.

Compositæ.

CALLIOPSIS TINCTORIA. DARK-FLOWERED CALLIOPSIS

Class XIX. Syngenesia. *Order III.* Polygamia, Frustranea.

Gen. Char. *Receptacle*, pale, chaffy. *Pappus*, or *Anthers*, with two horns. *Calyx*, erect, many-leaved.

Spe. Char. *Leaves*, double compound.

This is a hardy perennial plant, a native of North America. It produces blossoms which are uncommonly beautiful, from July till October. The *stem* rises to the height of five or six feet, in good soil, and is therefore rather adapted to the shrubbery than the flower-garden; *calyx*, many-parted and erect; *petals* five to eight, from a bright scarlet red to a pale yellow; the flowers are placed upon the end of long footstalks, and are large and numerous; the *stalk* or *stem* is considerably branched, each branch producing several flowers.

This plant, in its original or uncultivated state, exhibits a flower of a beautiful bright yellow color, with a deep blackish-purple, or blood-red eye; but cultivation shows that these colors are liable to vary, and has made us acquainted with a state of this plant, greatly increased in beauty and richness, so far as concerns the flower. In some specimens the whole of the ray is atro-sanguineous; in others there is a tawny, narrow margin, forming, as it were, a kind of limb around it. Mixed with the common yellow root in large patches, they add greatly to the elegant appearance and charms of a flower-garden. The species that produce petals of a pure yellow color, are used by the inhabitants to dye yellow. The stalks, limbs, and leaves are used to dye a purplish-blue, and are much valued on that account.

NAT. ORDER.

Ranunculaceæ.

HYDRASTIS CANADENSIS. GOLDEN SEAL.

Class XIII. Polyandria. *Order VI.* Polygynia.

Gen. Char. *Calyx*, of three ovate sepals. *Petals*, wanting. *Stamens* and *Ovaries*, numerous. *Fruit*, baccate, numerous, collected into a head, each terminated by the style, one-celled, one or two-seeded.

Spe. Char. *Seeds*, somewhat egg-shaped, smooth. *Root*, bitter, rather pungent and tonic, yielding a beautiful yellow dye, whence its name, *yellow-root.*

This plant derived its name from *hydor*, water, in reference to the humid places where it grows.

This is a small perennial herb, with tuberous roots. It is a native of North America, growing in watery places along the Alleghany mountains, from Canada to Carolina; along the river Ohio, and on the western parts of Virginia and Pennsylvania, in shady woods, in fertile soil, and among rocks. *Root* with fleshy tubercles, yellow on the inside; *stem* herbaceous, simple, one-flowered; lower *leaves* one or two, stalked, upper ones almost sessile, all of which are three to five-parted, with their lobes grossly toothed; *flowers* white or purplish, terminal, stalked; *fruit* fleshy, red, similar to that of *Rubus; carpels* ovate, acute, from eight to fourteen inches high.

The root is the part used for medicinal purposes; it is juicy when fresh, and loses two-thirds of its weight by drying. The taste is exceedingly bitter, rather pungent, and nauseous. The smell is strong and virose. It contains Amarine, extractive, several salts, and a pe-



Golden Seal.

culiar principle, *Hydrastin*, of a yellow color. Howard, speaking of the qualities of this root, says, "The Golden Seal is a powerful bitter tonic, highly useful in all cases of debility and loss of appetite. It may be used alone, or combined with other tonics. Very useful during the recovery from fevers, in dyspepsia, or any other complaint, to remove the heavy disagreeable sensation often produced by indigestible food, by taking a teaspoonful of the powdered root in hot water sweetened. A decoction of this root is also a very valuable remedy for sore eyes, as well as all other local inflammations, externally applied." Rafinesque says that the Indians use a decoction of this root for the cure of cancers, the powder for blistering, and the infusion for dropsy.

NAT. ORDER.

Solanaceæ

STRYCHNOS NUX VOMICA. VOMIC NUT OR POISON NUT.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Corolla*, five-parted. *Berry*, one-celled, with a woody rind.

Spe. Char. *Leaves*, ovate. *Stem*, erect.

This is a large *tree*, sending off numerous strong branches, covered with dark gray, smooth bark; the young *branches* have swelled articulations, or a knotty jointed appearance, scandent, and covered with a bark of a dark green color; the *leaves* start from the joints in pairs, upon short footstalks, and are ovate, broad, pointed, entire, with three or five ribs, and on the upper side of a shining green color; the *flowers* terminate the branches in a kind of fasciculated umbel; *calyx* small, tubular, five-toothed; *corolla* monopetalous; *tube* cylindrical, or rather inflated at the middle, very long, and at the limb cut into five small ovate segments; *filaments* five, short, fixed at the mouth of the tube, and furnished with simple anthers; *germen* roundish, supporting a simple style, terminated by a blunt stigma; *fruit* a round, smooth, large, pulpy berry, externally yellow, and containing round depressed seeds, covered with downy radiated hairs.

This tree is a native of the East Indies, and, according to history, was introduced into England in 1778, by Dr. Partrick Russel, but has never yet been cultivated with success in that country. The *nux vomica*, *lignum colubrinum*, and *faba sancti Ignatii*, have been long known in the Materia Medica as narcotic poisons, brought from the



Vomic Nut or Poison Nut.

East Indies, while the vegetables which produced them were unknown, or at least not botanically ascertained.

By the judicious discrimination of Linnæus, the Nux vomica was found to be the fruit of the tree described and figured under the name *Candam*, now called *Strychnos*. The seed of the fruit or the berry of this tree is the officinal Nux vomica; it is flat, round, about an inch broad, and near a quarter of an inch in thickness, with a prominence in the middle on both sides, of a gray color, covered with a kind of woolly matter, and internally hard and tough like horn; the taste is extremely bitter, but has no remarkable smell. It consists chiefly of a gummy matter, which is moderately bitter; the resinous part is rather limited in quantity, but intensely bitter; hence rectified spirit has been considered its best menstruum.

Medical Properties and Uses. Nux vomica is considered one of the most powerful poisons of the narcotic kind, especially to the brute creation; nor are instances wanting of its deleterious effects upon the human system. It proves fatal to dogs in a very short time, as appears by various authorities. It has also been found to prove equally poisonous to hares, foxes, wolves, cats, rabbits, and even some birds, crows, ducks, &c.; and one author relates a case of a horse that died in four hours after taking a drachm of the seed in a half roasted state. The effects of this baneful drug upon different animals, and even upon those of the same species, appear to be rather uncertain, and not always in proportion to the quantity of the poison given. With some animals it produces its effects almost instantaneously; with others not till after several hours, when laborious respiration, followed by torpor, tremblings, coma and convulsions, usually precede the fatal spasms, or tetanus, with which this drug commonly extinguishes life.

From cases reported of its mortal effects upon human subjects, we find the symptoms to correspond nearly with these which we have here mentioned of brutes; and these, as well as the dissections of dogs, killed by this poison, have ever shown any injury done to the stomach or intestines: this goes to prove that the Nux vomica acts

immediately upon the nervous system, and destroys life by the virulence of its narcotic influence.

The quantity of seed necessary to produce this effect upon a strong dog, as appears by experiments, is not required to be over a scruple—rabbits have been killed with five, and a cat with four grains. Of the persons to whom allusion has been made, one was a girl ten years of age, to whom fifteen grains were exhibited at two times only, for the cure of an ague, and resulted in her death. The recent valuable discoveries of the French chemists, render a particular account of the analysis of its seeds eminently interesting and important. It appears that the Nux vomica contains two very active alkaline substances, to which the names of *Strychnine* and *Brucine* have been given; and to these substances Nux vomica owes its deleterious and medicinal properties.

Strychnine. This substance is prepared as follows: "Add a solution of liquid subacetate of lead to a solution of water of alcoholic extract of Nux vomica, until no more precipitate is thrown down;—separate the lead by sulphuretted hydrogen; filtrate it, and boil with magnesia, which will unite with the acetic acid, and precipitate the strychnine. Wash the precipitate in cold water, re-dissolve it in alcohol, to separate the excess of magnesia, and by evaporating the alcohol, the strychnine is obtained in a state of purity: if not perfectly white, it must be re-dissolved in acetic acid or hydro-chloric acid, and reprecipitated by means of magnesia.

When slowly crystallized, it appears under the form of microscopical crystals, forming four-sided prisms, terminated by pyramids, with four flattened or depressed faces. Crystallized rapidly, it is white and granular; it is insupportably bitter to the taste, has no smell, is not changed by exposure to the air, is neither fusible nor volatile, and is decomposed by a degree of heat inferior to that which destroys most vegetable substances. Exposed to the naked fire, it swells, becomes black, and gives out an empyreumatic oil, a little water, acetic acid, carbonic acid gas, and carbonated hydrogen; it is scarcely soluble in

water, requiring 2500 parts of boiling water. The principal character of Strychnine consists in its forming neutral salts when united with acids; these salts are crystallizable, and for the most part soluble, and are much more active than the simple substance: it is therefore thought that when the system is habituated to the action of pure Strychnine, the salts may be substituted without increasing the dose.

Sulphate of Strychnine. This salt, if neutral, crystallizes in small transparent cubes, and in needles if the acid preponderates; it is soluble in less than ten parts of cold water, and decomposed by every soluble, salifiable basis. It consists of sulphuric acid 9,5, and Strychnine 90, 5—100.

Hydrochlorate of Strychnine. This salt is very soluble, and crystallizes in needles, which, viewed through a lens, appear to be quadrangular prisms; when exposed to a temperature at which the base is decomposable, it gives off muriatic acid.

Nitrate of Strychnine. This salt crystallizes in needles of a pearly aspect; it is much more soluble in hot than in cold water. It forms a very soluble salt with the oxalic, tartaric and acetic acids, susceptible of crystallization, especially if the acid be in excess. The action of this salt (the nitrate) is more energetic than that of the Strychnine itself.

Phospate of Strychnine—Crystallizes in four-sided prisms, and can only be obtained in a perfectly neutral state by double decomposition.

Subcarbonate of Strychnine—Is obtained in the form of white flakes. Boiled with iodine, it forms an *iodate* and hydriodate.

Remedial Effects, &c., of Nux vomica, and its Preparations.—M. Magendie, having by a series of experiments ascertained that the whole family of plants of the *Strychni amari* had the singular property of acting immediately and powerfully on the spinal marrow, without affecting, except indirectly, the functions of the brain, though they might be advantageously applied to the treatment of disease. He put his newly discovered remedy boldly to the test, and his conjecture, he

says, "was verified by numerous experiments made at the bed-side;" and he also adds, "I have seen the best effects follow the employment of the alcoholic extract of the Nux vomica, not only in cases of both partial and general paralysis, but also in many other states of weakness of the constitution, both general and partial." Dr. Fouquier, of Paris, has tried the Nux vomica very extensively, and in many cases, he says, with perfect success. He gives it in the form of powder or alcoholic extract; four of the former, or two of the latter, from twice to six times a day. In half an hour after administration, the paralysed muscles have, in some cases, begun to evince contraction; sometimes, however, it produces a tremulent effect, stupor, and a sense of intoxication; and when pushed too far, generally tetanus, and other distressing symptoms. Dr. Good says, "like all other powerful medicines, in their first and indiscriminate application, the Nux vomica appears sometimes to have been highly beneficial, sometimes mischievous, and sometimes to have produced violent effects upon the nervous system, without an important change of any kind." A grain of the alcoholic extract, absorbed from any part of the body, or mixed with food, destroys a dog of considerable size, by inducing paroxysms of tetanus, which, by their continuance, stop the perspiration, being enough to produce asphyxia; when the dose is much stronger, the animal appears to perish entirely from the action of the substance on the nervous system. The action of this extract on the healthy human body is precisely the same, as if the dose be sufficiently large, death soon follows with the same symptoms. The traces of the asphyxia, which caused death, are alone observable on dissection. On man, when affected with paralysis, the effect is the same; but it is particularly manifested in the paralyzed parts: it is there the tetanic symptoms occur, with a creeping sensation, which announces the action of the remedy.



Mrs. Horsfall's Ipomœa.

NAT. ORDER.

Convolvulaceæ.

IPOMÆA HORSFALLIÆ. MRS. HORSFALL'S IPOMÆA.

Class V. Pentandria. *Order I.* Monogynia.

Gen. Char. *Calyx*, five-parted. *Corolla*, campanulate, five-petalled. *Stigma*, capitate, two to three-lobed.

Spe. Char. *Stamens*, five. *Filaments*, glabrous. *Germen*, globose.

This is a tender evergreen. The *stem* is twining, of great length, glabrous, and also all the other parts of the plant; the *root* of this plant is a roundish, somewhat pear-shaped tuber, extremely blackish, internally white, with long fibres proceeding from its lower part, as well as from the upper root-stalks. A tuber produced by Dr. Cole, was, in its third year, between two and three inches in diameter.

In so extensive a genus as the one before us, and where many of the species are necessarily very imperfectly described, we are under the necessity of being very cautious how we constitute new ones: it was not until after a very careful comparison of the present plant with all the descriptions he had access to, and with a very extensive collection of the genus in his herbarium, that Dr. Hooker, of Glasgow, considered it to be new and gave it the name of the lady to whose kindness he was indebted for the drawing. The seeds were brought from Africa or East Indies. It produces a lovely blossom in great profusion in the months of December and January, a season when so gay a visitor is particularly welcome to all lovers of flowers.

The flowers, which are large, and of a lilac-purple color, stand upon peduncles about as long as the petioles. Each flower supports

two, or more rarely three flowers; when properly cultivated, it is a most splendid plant, and may be an object of interest as a medicine, though as far as its medicinal powers have been developed, it is vastly superseded by other plants of the same order—the Ipomæa jalapa and Ipomæa quamoclit.

Propagation and Culture. It is propagated and cultivated in the same manner as other tuberous plants, and requires similar soil and cultivation to the dahlia.

Medical Properties and Uses. The root is resinous, and when dried and pulverized, if inhaled, it produces irritation in the nostrils and throat, and provokes sneezing and coughing. It is cathartic, operating somewhat briskly upon the bowels; it will yield its properties to water or alcohol, though the alcoholic extract may be considered the most powerful. It is most efficient in dropsical complaints. A dose of this powder in ordinary cases is thirty grains.



Purple Indigo Plant.

NAT. ORDER.

Leguminosæ.

INDIGOFERA VIOLACEA. PURPLE INDIGO PLANT.

Class XVII. Diadelphia. *Order IV.* Decandria.

Gen. Char. *Calyx*, five-cleft. *Vexillum*, roundish, emarginate:—keel furnished with a subulated spine on each side. *Stamens*, diadelphous. *Styles*, filiform. *Legume*, continuous, two-valved.

Spe. Char. *Leaves*, various, usually irregular, pinnate, or digitate. *Stipules*, small, not united with the petiole. *Flowers*, in axillary racemes, purple, blue or white.

This plant has a *root* which is perennial, irregular, large and woody, blackish outside, yellowish within, and sending off many slender branches or fibres. The *stems* are two or three feet high, round and smooth, of a yellowish-green color, with black spots, very much branched at the top; the leaves are alternate, small, somewhat heart-shaped, and broadest towards the outer end; the *blossoms* are of a purple or white color, some species have a yellow flower, and are succeeded by a swelled oblong pod, of a bluish or blackish hue, as indeed is the whole plant, and becoming quite black on drying; the taste of the root is unpleasantly subacrid and nauseous.

This shrub is cultivated mostly in warm climates in dry sterile soils. In North Carolina, Florida and Arkansas, it is raised in large quantities as an article of trade.

Sensible and Chemical Properties. A well-known and highly important dye-stuff is obtained from this and other species of the *Indigofera.* In the process of preparing it, the plant is macerated in water; fermentation takes place; the liquor becomes of a greenish

color, and in due time is decanted; the coloring principle dissolved by the water, absorbs oxygen from the air, and assumes a blue color, becoming at the same time insoluble; a gradual precipitation takes place, favored by the addition of lime-water, or an alkaline solution: and finally, the precipitated matter, having been washed upon linen filters is dried, shaped usually into conical masses, and sent into market. It is of an intensely blue color, but assumes a coppery or bronze blue when rubbed by a smooth hard body, as the nail. It is insoluble in water or alcohol, but is readily dissolved by sulphuric acid, which, without destroying its blue color, so far alters its nature as to render it freely soluble in water, and thus afford a convenient method of applying it to the purposes of dying. The solution in sulphuric acid is kept in the shops under the name of sulphate of indigo.

Medical Properties and Uses. This plant has recently been introduced to the notice of the medical profession as a remedial agent. Though without odor and taste, it is said, in most individuals, to produce color to the stools, to render the urine of a dark-violet or dark-green color, without increasing its quantity, and sometimes to stimulate the secretory functions of the uterus. The character of its general influence upon the system has not been well ascertained.

The complaints in which it has been employed, with supposed advantage, are epilepsy, infantile convulsions, chorea, hysteria, and amenorrhœa. It has been considered useful internally as an antiseptic, in mortification, and all putrid complaints; but must be used, however, with great caution (internally), especially if in its recent or fresh state.

Externally, the Indigofera may be applied in poultice, wash, fomentation, or ointment, to ulcers and swellings of every description, but particularly to those which are in a mortifying or inflamed state, as it is a great antiseptic or preventive of mortification.

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